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Fortnightly Review

War Rationing

THE scheduled airlines agreed without hesitation last week to step aside for military aircraft expansion. They released to the Army half of the aircraft and engines on order for delivery to the airlines between now and June 1941.

In this commendatory demonstration of support for national defense and aid to Great Britain, one finds more than a mere hint as to the probable course and method for speeding up the defense program. Civilian consumption may first be curtailed and private production may be encouraged to go on a "war" basis, before the government considers commandeering production or transportation facilities to aid Britain. If the current picture is an accurate reflection of sentiment in the capital, the Army, Navy and merchant marine will not be stripped for the benefit of Britain.

It is heartening to see a spirit of close cooperation between the airline organizations and the Army-Navy forces in time of emergency. Once the cards were laid face up on the table, there was no lack of cooperation on the part of scheduled air transport.

The air forces cannot afford to forget, at the same time, that it was civil aviation and privately-financed scheduled airlines that kept aircraft and engine factories and development going forward in those peaceful years when our taxpayers influenced Congress to

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Airlines Aid U. S. & British By Giving Up New Equipment

PEAK PRODUCTION SEEN BY MID-1941

Jouett Reports \$83,356,580 Spent on
Expansion With \$232,188,472
More Planned

American manufacturers of aeronautical equipment have spent \$83,356,580 on plant expansion for national defense, and have let contracts for an additional \$232,188,472 worth of facilities which will be in operation by next June, it was reported by Col. John H. Jouett, president of the Aeronautical Chamber of Commerce of America, at the annual meeting of the association in New York on Dec. 5.

He added that the industry has already expanded payrolls from 60,000 shop employees last January to 164,920 at present.

When the current expansion programs are completed next June, the industry will have 382,000 shop employees, not including additional thousands taken on by subcontractors.

"Last January our productive floor space totaled 11,983,896 sq. ft. As of Dec. 31 this year we will have 22,530,988 sq. ft., and an additional

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Spokesman



Col. Edgar Staley Gorrell

President of the Air Transport Association of America, who represents the airlines before the National Defense Commission.

Adm. Towers Warns Against Inferior Planes in Accelerated Production

Warning that the United States should guard against inferior planes in its accelerated production program, Rear Adm. John H. Towers, chief of the Navy's Bureau of Aeronautics, in his annual report on Dec. 5, urged that development and experimentation be continued.

"The United States is entering a new period of intense competition in the aviation field, with emphasis on combatant aircraft," Adm. Towers said.

"Important as is the necessity for accelerating production, we must not fail to realize that while we are catching up with foreign nations in productive capacity there is danger that lack of emphasis on development and experimentation may leave us with aircraft inferior

to those of foreign countries which are able to concentrate on this phase.

"Funds allocated for experiments and development cover not only experimental airplanes and engines but also vital airplane accessories and aeronautical material of every category. It is essential that increases in facilities and funds for experiments and developments be provided and that there be no diminution of effort in this important field."

The situation with respect to patrol plane tenders has improved due to conversions completed and pending, Adm. Towers said, urging continued progress completely to offset the present deficiency and to

(Turn to page 6, col. 3)

Industry to Provide Engines Needed For British Fortresses

SCHEDULED airlines have agreed to permit release of approximately \$7,500,000 worth of planes and engines which they had on order for 1941 delivery in order to meet national defense needs for the Army and to permit immediate shipment of four-engine bombers to Great Britain.

Although these releases represent real sacrifices to a few lines, the curtailment is not as serious to the industry as a whole as newspaper publicity and initial statements in Washington indicated, providing, of course, that the agreement reached between the airlines and the government is not subsequently altered.

After some days of confusion, the situation in Washington boiled down simply to the fact that engines of the type used in Douglas DC-3 transports were badly needed at once for installation in four-engine bombers designated for England, while the Army Air Corps was desirous of obtaining about 60 DC-3 transports, ostensibly for its own use. Newspaper headlines to the effect that the government was planning on restricting airlines proved to be untrue although the psychological effect on the public was unfavorable and could have been easily avoided.

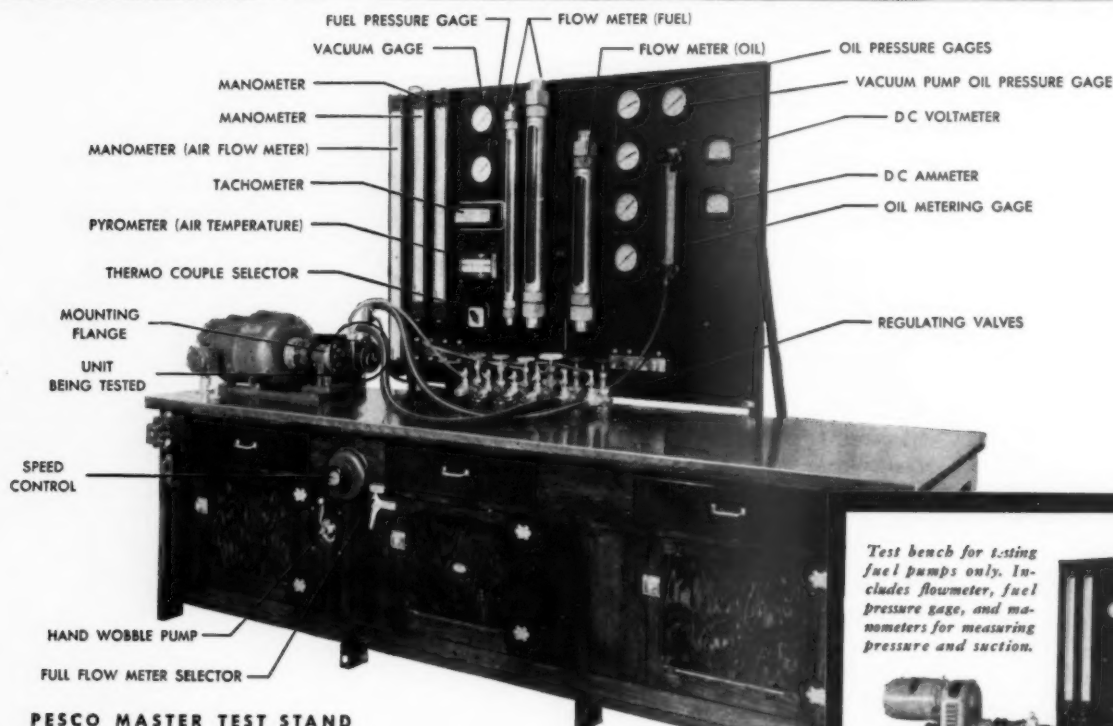
Two companies manufacturing transport planes were involved in the agreement—Douglas and Lockheed—although apparently the Lockheed planes now being built will be released to purchasers without restriction since their construction in no wise interferes with military production, and these planes and the engines with which they will be powered are not desired by the Army or the British.

About 110 Douglas DC-3 transports are on order. Under the new plan, the airlines will get 52 of these between now and June 1941, although mostly without engines until after that time. The Air Corps wants about 60 of these transports for its own services, and the engines are desired immediately for

(Turn to page 12, col. 1)

PESCO

TEST STAND ASSEMBLY



—FOR TESTING AIRCRAFT PUMPS AND ACCESSORIES AT MAINTENANCE STATIONS

Before an accessory is restored to service after the required periodic overhaul, it must be tested to insure satisfactory performance.

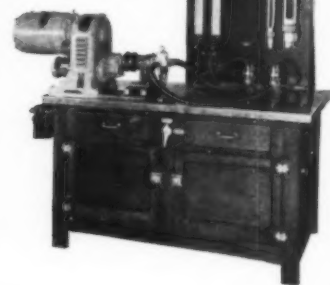
The PESCO Master Test Stand embodies all equipment necessary for conveniently checking the performance of pumps and accessories. Interchangeable mountings, designed to accommodate all types of aircraft pumps, can be coupled to an electric driving motor with speeds readily variable from 100 to 4200 r.p.m. The motor will handle loads up to 5 h.p. on continuous operation or intermittent loads up to 10 h.p. Current is supplied by a compact AC-DC motor generator set which can be furnished to operate on three-phase, 60 cycle, 220- 440- or 550-volt alternating current. The motor generator also provides a source of direct current for testing, checking and battery charging.

Accurately calibrated flowmeters, manometers, pres-

sure gages, vacuum gages, ammeter, voltmeter, tachometer and multipoint pyrometer are mounted on the panel for measuring capacities (rates of flow), speeds, inlet suctions, discharge pressures, temperatures, etc. An oil-supply tank with a sight gage measuring device accurately indicates the oil consumption of vacuum pumps. Valves are provided to obtain required suction and pressure during tests.

The bench provides extra storage bins and drawers in addition to storage tanks for hydraulic fluid, gasoline or mineral spirits and for collecting oil from vacuum pump discharge. Additional equipment can be easily installed for testing hydraulic cylinders, electrical generators and constant speed propellers.

Test bench for testing fuel pumps only. Includes flowmeter, fuel pressure gage, and manometers for measuring pressure and suction.



PUMP ENGINEERING SERVICE CORPORATION

DIVISION BORG-WARNER CORPORATION

12910 TAFT AVENUE

CLEVELAND, OHIO, U. S. A.

That One-Man Whirlwind, J. J. Crim, Scores Again in a Cloud of Dust

John J. Crim, a veteran of World War I who finds it easy to get Congress to adopt resolutions proclaiming national aviation days, has put through another idea in a big way. He promoted Pan American Aviation Day so well that even President Roosevelt has proclaimed it in an official message. Aviation organizations have been hard put to it to disavow any connection with Crim's organization which he calls the National Aviation Day Association.

His first enterprise in aviation, so far as is known, was to get a resolution through Congress creating National Aviation Day on Aug. 19, birthday anniversary of the late Wilbur Wright. Crim had many great plans for a membership organization and a magazine, but the manufacturers and other prospective advertisers didn't go for it.

Crim's next move was to get Congress to designate Dec. 17—Orville Wright's birthday anniversary—as Pan American Aviation Day, and a few obliging Congressmen, assuming the idea to have the backing of aviation organizations, put it through. Then President Roosevelt, also assuming that the movement was accepted by aviation people, issued a

proclamation. The White House was subsequently advised that Crim was acting on his own and did not have the support or endorsement of the National Aeronautic Association, the Aeronautical Chamber of Commerce and similar aviation organizations.

In fact, Mr. Crim stirred up a rather hefty rumpus in South America to the embarrassment of the Administration. Brazil, for example, took issue with the celebration because it didn't give proper credit to her air heroes. Secretary of State Cordell Hull on Dec. 3 issued a statement trying to pacify everyone and mentioning the "private sponsors" of the affair.

At last report Mr. Crim was endeavoring to stage an aviation ball at a Washington hotel, but had not earned any bouquets from aviation organizations except brickbats. So far as is known, he has no recognized aviation backing, but in this Democracy it's anyone's privilege to start an organization and Mr. Crim has done pretty well to date with two Congressional resolutions and two Presidential proclamations under his belt. Mr. Crim evidently has proved that a Man With a Cause can get places in Washington.

Aero Sales Manager



J. S. Pedler
Manager of the aeronautical sales division of B. F. Goodrich Co., Akron, O. The company has increased by 400% its output of Air-Cell latex which is now being used in the mass molding of aircraft parts.

50 Aircraft Firms Take Exhibit Space For Show at Miami

Approximately 50 aviation manufacturers have announced plans to participate in the aircraft parts show and five airplane companies will bring their latest stock models to the aircraft exhibit which will be held concurrently with the annual All-American Air Maneuvers at Miami, Fla., Jan. 10, 11 and 12.

Howard Goll and Carl Lambert, executive air race committeemen in charge of the show, expressed confidence that all of the 122 exhibit booths will be taken by the opening date. The entire aircraft show will be housed under a 360-ft. tent, with the space on the inside rim for booths and a large center clearing for special displays.

A feature of the maneuvers this year will be two novelty races. One, sponsored by Col. Richard Gimbel, will consist of a mock air bombardment of 10 south Dade County cities with one-pound sacks of flour. The bombardment group, three pilots and planes to a team, will be judged on formation take-offs, maneuvering and air precision as well as bombing accuracy on objectives.

The other race, open to women flyers only, involves a race to Ft. Lauderdale, a unique scavenger hunt and the return to Miami upon completion of the tasks assigned.

Flight Operators Organize at KC Meet

With purpose of improving methods of pilot instruction and of stimulating public interest in aviation the National Aviation Training Association was organized at a two-day conference, Dec. 2-3, at Kansas City, Mo., attended by more than 200 flight training operators and aircraft manufacturers. Membership in the association is open to all types of fixed-base operators, non-scheduled flyers, manufacturers and service concerns supplying the needs of non-airline flying enterprises.

Officers named include: William A. Ong, Kansas City, president; Leslie H. Bowman, Ft. Worth, Tex., vice president; Col. Roscoe Turner, Indianapolis, Ind., vice president; Maj. John C. Bennett Jr., Louisville, Ky., treasurer, and C. R. Mooney, Kansas City, secretary.

The association is organized on the basis of the seven regions mapped out by the CAA.

Sportplane Display in Chicago

Display of sportplanes, developments in two-way radio communication, flight clothing and other equipment of interest to sport pilots is listed as an exposition feature at the third annual International Sportsmen's Show to be held Feb. 22-Mar. 2 in Chicago's International Amphitheater, F. W. Kahler, director, has announced.

'Meat-chopper' Gun Power on 'Souped Up' Hurricane

The Royal Air Force has sent into action a "souped up" Hurricane fighter that mounts 12 guns and outspeeds the Spitfire, according to a recent British announcement.

The new Hurricane has twice the armament of the older model and has a four-gun margin over the Spitfire. Bursts from the 12 machine guns are said to act like a meat-chopper on anything within the line of fire.

Need 'Beaverbrook of Our Own,' Canadian Paper Says; Hits Red Tape in Production

Stating that too much red tape is strangling Canadian plane production, the *Canadian Financial Post* recently suggested that "we need a Beaverbrook of our own" to expedite construction of large military aircraft.

In an editorial entitled "Where Are Canada's Planes?" the paper states that "by luck, and through the enthusiasm and energy of a few companies we have produced a sufficient supply of training planes to meet requirements. But we will need much more than this to build the heavier fighting craft that must follow the trainers."

Heavier planes that "are actually used against the enemy" require 50,000 to 125,000 man-hours in production, compared to 5,000 to 10,000 man-hours for trainers, the *Post* says.

"To get these big planes quickly and in war-deciding volume we need a Beaverbrook of our own," it

claims. "We need a leader big enough to slash through present crippling red tape, a man with broad vision and the ability and power to make quick, right decisions."

Canadian aircraft executives are said to be complaining of (1) too much red tape, (2) too little coordination, and (3) lack of a definite policy. There are, the paper continues, (1) four separate authorities concerned in the administration of aircraft contracts, (2) three separate authorities checking costs and (3) two separate government inspection organizations. "In some cases all of these authorities must be consulted before a single rivet can be driven," it says.

It is also claimed that "the engine and instrument problem is not solved. The trained labor problem is not solved." Many factories are said to be "cluttered up with an army of inspectors, custom men and cost accountants."

Sabotage Legislation Approved by Congress

A bill amending the existing sabotage law in order to make it applicable in time of emergency as well as in wartime has been approved by Congress and sent to the President.

The legislation prescribes a maximum fine of \$10,000, a maximum of 10 years imprisonment, or both, for willful injury or attempt to injure national defense premises, material or utilities, including aircraft. It also imposes an identical penalty against anyone who "willfully makes, or causes or attempts to be made, in a defective manner, any national defense material."

DIRIGIBLE ROUTE EYED

Goodyear in Discussion with Brazil on Opening Line from Miami to Rio de Janeiro

Goodyear Tire and Rubber Co. Inc., Akron, O., has consulted the Brazilian government concerning the possibility of establishing a dirigible line between Rio de Janeiro and Miami, Fla.

E. J. Thomas, Goodyear president declared this month that the project has "merely reached the discussion stage" and not the point of surveying bases or putting plans on paper.

Jim Hazlip Back

Jim Hazlip, noted speed flyer who has been in England for several years, is now in the U. S. ferrying Douglas DB-7 bombers from California to the east coast where they are shipped to England.

American Export Ads

In this issue appears a four-page advertisement of American Export Airlines Inc., the most extensive institutional advertising ever inserted in an aeronautical publication by an airline. Only two mediums in the U. S. are being used by the company for these advertisements, the *New York Times* and *AMERICAN AVIATION*. The theme outlines the part played in America's national defense and international commerce by American Export Airlines and its steamship parent, American Export Lines.

COL. SMITH RESIGNS

Goes on Active National Guard Duty in Alabama in Unexpected Move

Lt. Col. W. Sumpter Smith resigned Dec. 1 as chairman of the Interdepartmental Engineering Commission in charge of building Washington National Airport. He has been recalled to Alabama for active duty as air officer of the 31st National Guard Division.

His work will be continued by Fred E. Schnepfe, representative of the Public Works Administration, who has been elected acting chairman of the commission, and Howard H. Houk, resident engineer.

Col. Smith has been largely responsible for the new airport at Gravelly Point, just across the Potomac from the nation's capital. A \$13,000,000 project, the airport is expected to be a model for the nation.

Starting Dec. 15 the airport will be available for emergency landings. A night manager will be on duty to switch on boundary and other lights if landings are necessary. Grand opening of the airport will take place about Apr. 1, and until that time Washington air traffic will continue to use Washington-Hoover Airport one mile north of the new port.

Calendar

- Dec. 17—Wright Brothers Lecture for 1940, "Recent Fog Investigations," by Dr. Sverre Pettersen, Columbia University, New York, N. Y.
- Dec. 17—Pan American Aviation Day.
- Jan. 6-10—Annual Meeting and Engineering Display, Society of Automotive Engineers, Book-Cadillac Hotel, Detroit, Mich.
- Jan. 10-12—1941 All-American Air Maneuvers, Miami, Fla.
- Jan. 29-31—9th Annual Meeting of the Institute of the Aeronautical Sciences, Columbia University, New York, N. Y.
- Feb. 15-23—6th Annual National Sportsmen's Show, Grand Central Palace, New York, N. Y.
- Feb. 22-Mar. 2—3rd Annual International Sportsmen's Show, International Amphitheater, Chicago, Ill.
- Mar. 3-7—American Society for Testing Materials, Mayflower Hotel, Washington, D. C.
- Mar. 24-29—Machine & Tool Progress Exhibition, Detroit, Mich.
- Aug. 25-Sept. 2—3rd Annual American Open Soaring Contest, Joliet, Ill.

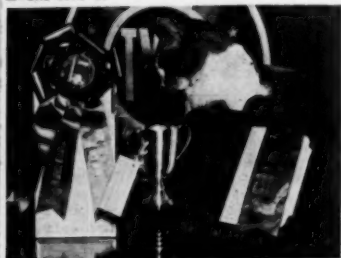
News in Pictures



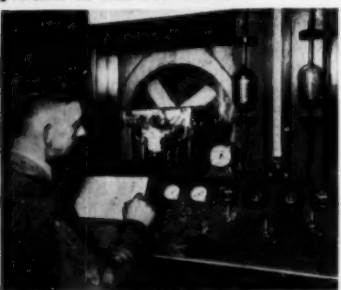
First Officer Bill Judd of TWA (left), and Capt. Bud Enyart, TWA, listen in while Phil Cook (center), star of WABC's "Morning Almanac" variety program, tells them about the radio business. Cook's program is heard under the sponsorship of Childs Restaurants.



Shown here are representatives who attended the third annual director's meeting of the American Airlines Division of Air Line Communication Employees Association in Chicago recently. The meeting followed the national director's meeting in which American, Braniff, Chicago & Southern and Northwest Divisions were represented. Seated, left to right: O. H. Schmidt, ALCEA president; W. G. Mulaney, chairman, AMA Division; E. T. Fisher, director, Local No. 2; I. E. Roland, director, Local No. 1. Standing: C. H. Williams, teletype representative, and E. W. Helken, director, Local No. 3.



Strato-Lizzie, TWA's mascot, shyly poses with her cat show awards. The ribbons were given her at the New York World's Fair Cat Show, and the cup was awarded her at the Beresford competition held in Chicago Nov. 30-Dec. 1. Strato-Lizzie had a mighty tight schedule that weekend. She competed in a show in Brooklyn on Thursday, flew to Chicago for the Beresford meet, and early Monday morning left for a competition in San Francisco.



Announcement that eight new test cells have been added to those already in operation has been made by Lewis E. Pierson Jr., president of Aircooled Motors Corp., Syracuse, N. Y., in the manufacture of Franklin Lightplane engines. One of the new test cells is shown.

Col. J. H. Jouett Re-elected President of Aero Chamber; Walsh Joins Vultee

Col. John H. Jouett, of Washington, D. C., was re-elected president of the Aeronautical Chamber of Commerce of America, trade association for the aircraft manufacturing industry, at annual meeting of the members in New York City, Dec. 5.

Other officers elected are: vice presidents, Glenn L. Martin, president of Glenn L. Martin Co., Baltimore, Md., which recently joined the Chamber; L. R. Grumman, president of Grumman Aircraft Engineering Corp., Bethpage, N. Y.; Howard Mingos, New York, N. Y.; secretary, Richard H. Depew Jr., vice president and general manager of Taylorcraft Aviation Corp., Alliance, O.; treasurer and assist.-secy., Frank J. Walsh, Passaic, N. J.

Though re-elected treasurer and assistant secretary, Walsh, who has been with the Chamber for more than 11 years, resigned his duties to join Vultee Aircraft Inc., Vultee Field, Cal., as assistant secretary starting Jan. 15. Successor to Walsh has not yet been named.

Members of the executive committee of the Chamber elected at the meeting and the companies they represent are:

Clayton J. Brukner, Waco Aircraft Co., Troy, O.; E. N. Gott, Consolidated Aircraft Corp., San Diego, Cal.; Joseph T. Hartson, Glenn L. Martin Co., Baltimore, Md.; L. V. Kerber, Lockheed Aircraft Corp., Burbank, Cal.; Albert I. Lodwick, Lycoming Division of Aviation Manufacturing Corp., Williamsport, Pa.; Lauren D. Lyman, United Aircraft Corp., E. Hartford, Conn.; Charles Marcus, Bendix Aviation Corp.; Bendix, N. J.; Thomas A. Morgan, Sperry Corp., New York, N. Y.; James P. Murray, Boeing Aircraft

Co., Seattle, Wash.; F. R. Neely, Bell Aircraft Corp., Buffalo, N. Y.; John M. Rogers, Douglas Aircraft Co., Santa Monica, Cal.; J. A. B. Smith, Curtiss-Wright Corp., New York, N. Y.; Leland R. Taylor, North American Aviation Inc., Inglewood, Cal.; J. Carlton Ward Jr., Fairchild Engine & Airplane Corp., N. Y. C.

Board of Governors

The following men, in addition to the members of the executive committee, comprise the newly elected board of governors:

Walter H. Beech, Beech Aircraft Corp., Wichita, Kan.; William Brinkerhoff, Private Fliers Association, Hackensack, N. J.; Reed M. Chambers, U. S. Aviation Underwriters, New York, N. Y.; William A. Forbes, New York, N. Y.; Richard Goldsmith, The B. G. Corp., New York, N. Y.; M. B. Gordon, Wright Aeronautical Corp., Pater-son, N. J.; L. R. Grumman, Grumman Aircraft Engineering Corp., Bethpage, N. Y.; W. D. Guthrie, Roosevelt Field, Mineola, N. Y.; C. S. Jones, Casey Jones School of Aeronautics, Newark, N. J.; John H. Jouett, Aero Chamber, Washington, D. C.; W. W. Kellett, Republic Aviation Corp., Farmingdale, N. Y.; H. W. Lake, Socony-Vacuum Corp., New York, N. Y.; Charles L. Lawrence, Lawrence Engineering & Research Corp., Linden, N. J.; J. Story Smith, Jacobs Aircraft Engine Co., Pottstown, Pa.; T. C. Sullivan, Vultee Aircraft Inc., Vultee Field, Cal.; Frank Tichenor, Aero Digest Publishing Corp., New York, N. Y.; T. E. Tillinghast, Pratt & Whitney Aircraft Division of United Aircraft Corp., E. Hartford, Conn., and A. W. Wild, Continental Motors Corp., Detroit, Mich.

Union Drive On Air Industry Looms Following Vultee Strike Settlement

The first major aircraft strike to disrupt the national defense program was settled last month when Vultee Aircraft Inc., Downey, Cal., granted union demands for increased minimum wages, but continued labor unrest and forecasts of union drives at other plants brought threats of more production tie-ups.

Wyndham Mortimer, strike leader at Vultee, announced an immediate campaign to raise pay throughout the aircraft industry "up to automobile wage rates" and declared that negotiations soon would be opened with other southern California airplane companies including Ryan Aeronautical Co., San Diego; North American Aviation Inc., Inglewood; Menasco Manufacturing Co., Los Angeles, and Harvill Aircraft Die Casting Corp., Los Angeles.

New contract at Vultee provides a minimum wage of 62½ cents an hour for all present employees, an equal sum for workers hired in the future with a year's mechanical experience and a minimum of 55 cents an hour for future unskilled employees. The 16-month agreement states that the union "will not cause or engage in or permit its members to take part in any sit-down, stay-in, slow-down or sympathy strike in the plant . . . or any curtailment of the work or restriction of production or interference with production of the com-

pany." The company guarantees not to "cause or sanction a lockout."

Meanwhile the tie-up of \$84,000,000 in military aircraft orders had repercussions in Washington. Rep. Martin Dies (D., Tex.) charged that his investigating committee had obtained evidence that subversive factions were prominent in the aircraft industry, while Rep. John Costello (D., Cal.) declared that strikes threatened to stop airplane production entirely and add \$250,000,000 to the cost of military aircraft ordered by the government. Costello said Consolidated Aircraft Corp., San Diego, North American, Menasco and Harvill in California; Ranger Aircraft Engines Div., Fairchild Engine & Airplane Corp., Farmingdale, N. Y., Republic Aviation Corp., Farmingdale; Grumman Aircraft Engineering Corp., Bethpage, N. Y.; and Liberty Aircraft Products Corp., Farmingdale, were in the path of the union drive.

Developments this month resulting from Congressional and public demand for cessation of defense production shutdowns included the appointment of Edward F. McGrady, former assistant secretary of labor, as special consultant on labor matters to Secretary of War Stimson and the decision of the House Judiciary Committee to study the question of possible legislation to prevent further defense delays due to strikes.

Off the Beam

LOCKHEED REPORTS that of the hundreds of Hudson bombers shipped on British freighters, 99% have arrived safely at the assembly plant in England or elsewhere in the Empire. Only four have been lost at sea.

THE BUSINESS of keeping airline passengers happy is becoming so highly specialized that United Air Lines has placed crochet kits aboard all its transport planes. What's more, the company has been giving its stewardesses a few lessons in the gentle art at its school for stewardesses in Chicago.

DISMANTLE four 14-cylinder engines. Place the 22,000-odd parts in a large box. Shake well. Then reassemble into four complete engines. They did just that at Wright Aeronautical Corp. to test the interchangeability of engine parts. And, according to the Aero Chamber's public relations committee, the four reassembled engines functioned perfectly.

NEW BOMBERS to be built for England by Lockheed's subsidiary, Vega Airplane Co., under a \$30,000,000 sub-contract, will be known as Lockheed Vega 37's, larger and faster than the Hudsons, it is reported in "Aeronautics," British monthly. As noted in AMERICAN AVIATION for Dec. 1, the Hudson is a military version of the Lockheed 14; the new 37 will be the military counterpart of the commercial Lodestar.

NEW YORK HEADLINE—"LaGuardia Field Has Birthday Cake; Mayor Nibbles Candy Flower From Its Six-Foot-High Top After Climbing a Table." And as the city's colorful Mayor, the Little Flower, nibbled a candy flower and joined five airlines in celebrating on Dec. 2 the first anniversary of the formal opening of LaGuardia Field-New York Municipal Airport. Following the "nibbling" ceremony, the detailed report explains, the Mayor "hacked off the first slice."

VITAL STATISTICS show that today 35 companies, scattered throughout the country, are at work on Sperry orders . . . Five thousand men hours go into the building of a 14-cylinder aircraft engine, from rough casting to finished product . . . The Army Air Corps reports the famous Bell Airacobra pursuit can operate "above 36,000 ft." . . . An average of 44 cents of every airplane sales dollar and 25 cents of every engine sales dollar goes to shop labor.

THE AVERAGE airline pilot is 33 years of age; 5 ft. 10 in. in height; weighs 166 lbs., and has blue eyes and brown hair, according to DR. RALPH GREENE, director of Eastern Air Lines' aero medical department who has conducted a survey of all the company's flight personnel (131 captains and 157 pilots). Further describing the "average pilot," Dr. Greene says his temperament is complacent, controlled; his average pulse rate is 71 bpm. (beats per minute). "Medically speaking, his physical and mental health is so superior, one can view it only as a high tribute to his habits of good, clean living."

Reserve Promotes Two

Guy W. Vaughan and Charles J. McCarthy have been promoted from grade of lieutenant to that of commander in the Naval Reserve, the Navy Dept. has announced.

Vaughan is president of Curtiss-Wright Corp., and McCarthy is general manager of Vought-Sikorsky Aircraft Division of United Aircraft Corp.

Shloss Joins Chamber

The Aeronautical Chamber of Commerce has engaged Leon W. Shloss as a staff member of its information department in Washington.

Shloss resigned from the Washington office of International News Service where he served as aviation writer.

Watch Northrop

EXPERIMENTAL

A forgotten room? Not in America! In a day when circumstances demand that aviation achievement be measured in terms of volume, not even the ceaseless rumblings of heavy production machinery straining at top-speed distract the experimental engineer from his endless task of keeping American aircraft performance supreme.

Northrop is in the vanguard of stepped-up defense production. But today, more than ever before, it believes that supremacy in the air depends primarily on research and experimentation in the laboratory. This is just another reason why we suggest you WATCH NORTHROP.



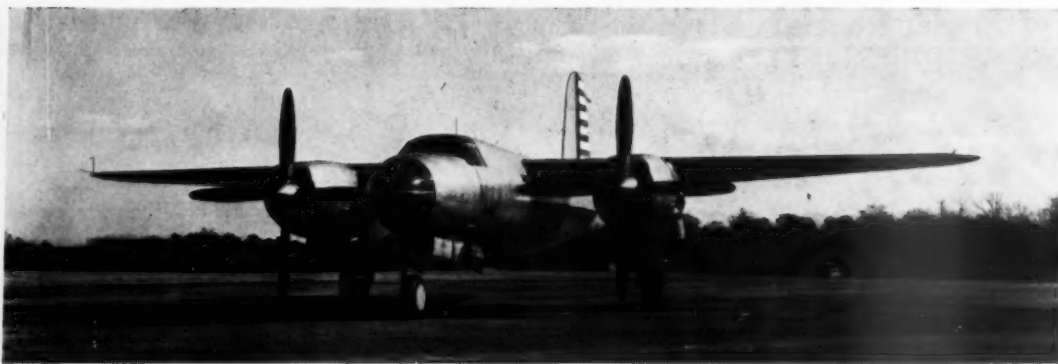
The first Northrop plane rolls off the production line. This patrol bomber was designed, engineered, tool-ed, produced and delivered just seven months after date of order. It was manufactured under Northrop contracts that now total more than \$20,000,000.00

NORTHROP AIRCRAFT, INC. IS AN INDEPENDENT ORGANIZATION

NOT AFFILIATED WITH ANY OTHER AVIATION COMPANY.

NORTHROP AIRCRAFT, INC. • NORTHROP FIELD, HAWTHORNE, CALIFORNIA, U.S.A. • CABLE "NORAIR"

Lessons of War Reflected in New Design



NEW medium bomber which incorporates several new principles in U. S. aircraft design was tested for the first time on Nov. 29 at Glenn L. Martin Co.'s private airport near Baltimore by W. K. Ebel, chief engineer, with Ed Fennimore as co-pilot.

Designated the Martin B-26 and expected by company officials to prove itself the world's fastest bombing plane, the craft is said to utilize exhaust energy to add several miles to its top speed and to be fitted with self-sealing fuel tanks and armored cockpits. Built for the Army Air Corps, the ship is believed to represent the first practical application of jet propulsion to a U. S. military plane.

In the top of the fuselage is a power-driven turret, and another turret has been built in the tail of the ship, under the rudder. Heavy machine guns will be mounted in the transparent nose.

William P. Lear Wins Frank Hawks Award For Gyro Navigator

The Frank M. Hawks Memorial Award was presented this month to William P. Lear, well-known radio engineer and president of Lear Avia Inc., for outstanding "contributions in aircraft radio."

Lear's latest achievement in a long series of radio developments is the "gyromatic navigator," which simplifies aerial navigation and instrument landings and makes possible bombing operations under "blind" weather conditions.

The device, which was demonstrated before U. S. and Allied aviation authorities last spring, combines the functions of an automatic radio direction finder and directional gyro. The correlated use of these two elements provides the pilot with a continuous running solution of air navigation problems, including drift indication. These facilities are sufficient to bring a bomber over enemy objectives and permit the attacker to drop his bombs through clouds or fog. The additional use of an altimeter is all that is necessary for a completely blind landing should one be necessary upon the bomber's return to its home base.

A photo and description of the gyromatic navigator will be found on page 25.

Cram With the Marines

Jack Cram, who has been assistant to Grove Webster in the Civilian Pilot Training Program of the CAA since its inception, is now in active duty with the U. S. Marines. Cram formerly was a fixed base operator in Oregon.

High Accuracy of Fire From Bell P-39 Pursuit Reported by Army Pilots

Three Army pilots who alternately flew the Bell P-39 from Buffalo Municipal Airport to a point in Lake Ontario, off Ft. Niagara, and fired at targets in the water, reported great accuracy of fire from long ranges with the 37 mm. cannon, which is mounted in the nose firing through the propeller hub.

Machine guns, also mounted in the nose and synchronized to fire through the propeller arc, achieved a relatively high performance in the tests, the War Dept. revealed late in November.

The accelerated firing tests with the P-39 (Airacobra) pursuit, were conducted over a period of a week by the three pilots. In all, 40,000 rounds of machine gun ammunition and 500 rounds of 37 mm. cannon shells were fired from the plane.

Tests were conducted on a standard Airacobra which had just come off the production line of Bell Aircraft Corp. at Buffalo.

Curtiss Develops P-40D, Advanced Pursuit, for Army

In addition to the current P-40 and O-52 models, Curtiss-Wright Corp. has developed at Curtiss Aeroplane Division, Buffalo, a new P-40D advanced pursuit which will soon be in production for the Army Air Corps, according to Guy W. Vaughan, C-W president.

U. S. Navy designs in production include current models of dive-bombers, the SXO3C-1, a newly developed long-range scout-observation type, and the advanced, all-metal Navy XSB2C-1 dive bomber.

New final assembly department, 120,000 sq. ft. floor space, will have a ceiling clearance of 40 ft. free of obstructions and with doors opening the entire width of the building at each end, "indicating something of the size of the combat planes which the new factory may be required to produce in the near future."

New Antiaircraft Center

A \$9,000,000 antiaircraft firing center in the vicinity of Wilmington, N. C., was authorized this month by the War Dept.

Eight coast artillery regiments will be located at the center, which is scheduled to be ready for occupancy about Mar. 15.

Another new feature is the use of two four-blade Curtiss electric full feathering propellers measuring 13 ft. 6 in. in diameter. Because the tricycle landing gear allows the craft's nose to rest near the ground, three-blade propellers of a greater diameter could not be used. The Curtiss electric on the B-26 are equipped with cuffs.

Powered by two 18-cylinder, 1,850-hp. Pratt & Whitney engines, the ship has a gross weight of 26,625 lbs. and will carry a normal crew of five. Carefully guarded at the Martin plant, the B-26 was announced recently by Glenn L. Martin, president and general manager, as a single type his company would build for the Army. Another type, the Martin PBM, is being manufactured for the Navy.

The Martin company holds a \$99,641,880 Army contract which is believed to cover an initial order for approximately 1,100 of the new B-26's.

Plane Workers Offer Bomber as Yule Gift

Employees of Lockheed Aircraft Corp. and Vega Airplane Co., Burbank, Cal., have presented to the management of the two concerns proposals whereby they would donate the building of a Lockheed Hudson bomber to the people of England as a Christmas present.

The original plan was for the men to donate two hours' working time each, with the company furnishing materials; but Robert E. Gross, Lockheed president, declared that a different plan might be necessary to meet neutrality law requirements.

He stated that Lockheed would be glad to transfer funds raised by the employees to the British ambassador with instructions that the money be used for the purchase of a bomber for the people of England. Gross indicated that the company would cooperate in every way to enable the employees to deliver their Christmas gift.

Adm. Towers

(Continued from page 1)

insure for patrol squadrons the mobility and flexibility of operation of which they are capable.

Other recommendations included: Utilize training facilities existing and in prospect to maximum capacity in order to alleviate the existing shortage of naval aviators and to meet the demands of the expansion program.

Continue close cooperation with the National Defense Council, the Army Air Corps, and the manufacturers of aircraft to insure the rapid procurement of suitable aircraft.

Accelerate and simplify the procurement of civilian personnel in both the Bureau and field services in order to proceed with the maximum efficiency in the defense program.

Pursue a moderate airship building program and continue training personnel in non-rigid airships.

Cleveland Selected Site for New NACA Engine Research Lab

The five-month survey of 72 sites offered by 62 cities in all parts of the country for the government's new \$8,400,000 airplane engine research laboratory came to a close Nov. 25 with announcement by Dr. Vannevar Bush, chairman of the National Advisory Committee for Aeronautics, that Cleveland, O., had been selected as the site and that construction of the project would begin in December.

The laboratory was authorized by Congress June 26, 1940, to provide facilities for scientific research on fundamental problems of engine design and its construction is considered a major advance in building up present inadequate aeronautical research to the magnitude reached in England and Germany.

The laboratory, to be built on a 200-acre tract on the westerly side of Cleveland Municipal Airport, will be NACA's third major research station. The Committee's present units, one at Langley Field, Va., and the other at Moffett Field, Cal., are devoted chiefly to investigations in aerodynamics, although at Langley there are also hydrodynamics and small engine research laboratories.

Cleveland's project will consist of six major units: (1) powerplant laboratory costing \$3,950,000, of which \$2,250,000 is for equipment; (2) powerplant wind tunnel costing \$3,100,000; (3) engine torque stands \$200,000; (4) fuels, lubricants and instruments laboratory \$400,000, of which \$150,000 is for equipment; (5) hangar \$200,000, and (6) administration building \$250,000. Miscellaneous items such as roads, fences, fuel tanks, power and water supply will cost an additional \$300,000.

Annual budget to be required is estimated at \$650,000.

Facilities at Cleveland will permit research into engines up to 4,000 hp., twice the power output achieved to date.

WPA and War Dept. Agree on Projects Priority Plan

Speed-up arrangement between WPA and War Dept. will give "blanket priority to all projects of types designated by the Army as important to national defense," Howard Hunter, acting commissioner of Work Projects, announced recently.

Heretofore, the War Dept. has acted on individual applications for projects in which it was interested, but now will pass individually only on airport buildings requiring WPA funds exceeding \$100,000.

The method of individual certification will continue for projects in which the Navy is interested.

Ranking Ace



Bishop

at the Waldorf Astoria Hotel. One of the prominent guests was Jacqueline Cochran, recently selected for the third successive year by the International League of Aviators as the outstanding woman flyer of the world.

PROVED By 7000 Hours' Service

Stainless manifolds now standard equipment on many famous ships

NOW, added to the inherent advantages of U·S·S Stainless Steel for exhaust manifold systems, is another fact which cannot be overlooked. Stainless manifolds have successfully passed the most rigorous tests of all—actual service tests of 5000 to 7000 hours' flying time.

A brief summary of the properties of U·S·S Stainless Steel shows why it is the logical material for aircraft manifold systems — why stainless is today the most widely accepted construction employed both in civil transport and in U.S. Army and Navy ships.

1. It has a high ultimate strength, even at prolonged temperatures from 1000 to 1600°F.
2. It stubbornly resists corrosion—remains unaffected by either atmospheric exposure or the corrosive products of modern "doped" fuels.
3. It minimizes oxidation scale, throughout the entire temperature range.
4. It effectively resists abrasion at points of metal-to-metal contact.
5. It has excellent qualities for deep-drawing, bending, welding—can be fabricated easily, speedily, and efficiently.

These advantages make the stainless manifold the safest, most efficient, most all-round economical construction ever developed for aircraft service. Write today for complete information.



STAINLESS MANIFOLDS are easy to fabricate. Here is how one prominent aircraft producer does it. Flat sheets of U·S·S Stainless Steel are here deep drawn to form half-sections. The half-sections are later welded together to form the complete manifold. Proper design assures adequate metal thickness at all points. The stabilized material, which is not subject to intergranular corrosion, is used in this construction.

Civil transports and fighting ships alike are now equipped with manifold systems of U·S·S Stainless.



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NATIONAL TUBE COMPANY, Pittsburgh

United States Steel Export Company, New York
Scully Steel Products Company, Chicago, Warehouse Distributors

U. S. Airmen Flying Bombers to Britain

Forty U. S. aviators are making regular mass deliveries of American bombers to England across the North Atlantic. George R. Hutchinson, one of the pilots, disclosed this month. Along with British and Canadian airmen, the Americans make the trip in approximately 10 hours, flying at high altitude, Hutchinson stated.

No German opposition has yet been encountered by the bombers, which take off from an airport in "British North America" carrying a pilot, co-pilot and radio operator. Each crew makes about one flight a month, returning by boat.

AVIATORS FOR BRITAIN

First Graduates of Commonwealth Air Training Plan Arrive to Join RAF

The first group of airmen graduated from the British Commonwealth Air Training Plan has arrived in England to take up observation duty with the Royal Air Force.

While aviators trained in the Dominions have been in action in England for many months, this group, composed entirely of Canadians, is the first graduated from the project on the full scale empire-wide basis.

Army Weighs Promotions For Reserve Lieutenants

The War Dept. has directed Army, corps area and department commanders, chiefs of arms and services, and commanders of exempted stations to submit names of eligible reserve first and second lieutenants whose service while on active duty warrants temporary promotion to the next highest grade.

Reserve second lieutenants who had completed at least one year of extended active duty with the Regular Army on Sept. 9, 1940, would be eligible for temporary promotion to first lieutenant. The group would include approximately 300 Air Corps second lieutenants and 530 officers of other arms and services.

Approximately 100 reserve first lieutenants, all Air Corps officers, who have been on extended active duty for at least three years prior to Sept. 9, 1940, would be eligible for temporary promotions as captains.

Invisible Light Reduces Instrument Panel Glare

Invisible light is being used in the new fluorescent system of airplane instrument panel illumination recently developed for the Air Corps at Wright Field.

Designed to provide adequate illumination without glare, the invisible light reduces eye strain during long flights. The illumination being provided with a low level of light intensity, less contrast is apparent between the interior of the airplane and objects outside, thereby aiding in night formation flights and night landings.

The lighting effect is achieved with luminous paint applied to standard instrument dials. Invisible light from three fluorescent lamp assemblies mounted between the seats and instrument panel activates the paint to make all figures stand out clearly. Near the pilot is another lamp assembly attached to a flexible cable, enabling him to move it in any desired position to read maps or indicators.

Superiority over other lighting systems is reported in cost of operation, length of service and simplified maintenance.

AC Gets Auxiliary Field

An auxiliary airfield, totaling 970.4 acres, will be established for the Army Air Corps in the vicinity of Montgomery, Ala., according to a War Dept. announcement recently. Four parcels of land have been leased, and the field will be used as an auxiliary landing field in connection with the training of pilots by the Southeast Air Corps Training Center with headquarters at Maxwell Field, Ala.

Changing Military Strategy



The War Dept. announced in mid-November the delivery to the Army Air Corps of the first of the A-20A attack-bomber, first of a "large number" under construction at Santa Monica, Cal., by Douglas Aircraft Co. Essentially the same as the Douglas tricycle DB-7 built for France, also known as the Douglas Boston in England, the A-20A is powered by two 14-cylinder Wright Cyclones. It has a gross weight of 19,050 lbs., a wing span of 61 ft. and carries a crew of three. The craft combines the features of an attack airplane and a light, fast bomber, subordinating load capacity to performance. Such airplanes, it is reported, are changing military attack strategy in combats over London.

Design for a Troop Transport



Shown landing here is the 36-passenger Curtiss-Wright transport, America's largest twin-engine airliner, with which St. Louis Airplane Division of Curtiss-Wright Corp. has resumed flight tests at St. Louis Municipal Airport after undergoing a few structural changes.

Chief Test Pilot Edmund "Eddie" Allen and Co-Pilot Dean Smith, who are conducting the tests before airline and government representatives, report that "the results of the flight tests have been most satisfactory." The airliner has been selected by the Army Air Corps as the basic design for a new troop transport and cargo plane.

The new craft is powered by two 1,700-hp. Wright Cyclones, most powerful engines in commercial service, and is equipped with three-blade Curtiss electric propellers, the largest of their type in commercial operations.

NA's Improved Fighter



Now undergoing exhaustive flight tests, North American Aviation's first NA-68 single seat fighter was expected to be ready soon for shipment. The NA-68 is a low-wing fighter of the NA-50 type, powered by an 850-hp. Wright Cyclone. The plane is said to possess many improvements in design and performance over a similar type formerly built by NA.

New Design is Fast



Believed to be one of the fastest of its type in the world, North American's B-25 medium bomber is a twin-engine, five-place type, of which a large quantity has been ordered by the Army Air Corps. The B-25 has been put through flight tests and production is expected to reach a peak early in 1941. The plane is of new design throughout.

'CHUTISTS WELL ARMED

Company Equipment Includes Bicycles, Automatic Rifles and Mortars Initial Plans Reveal

U. S. parachute troops will be equipped with folding bicycles and have heavy-fire power, according to tentative organization plans.

Each parachute company of 117 men will carry nine bicycles, 87 automatic rifles, 10 sub-machine guns, three 60-millimeter mortars and nine light machine guns. In addition, all parachutists will have pistols.

The first Army parachute unit, the 501st Parachute Battalion, is now in training at Ft. Benning, Ga.

Airmen Training in U. S. For Service in Dominion

Four U. S. volunteers for flight service in Canada have begun an advanced flying course at Spartan School of Aeronautics, Tulsa, Okla., while other trainees are reported planning to enter similar training programs at Dallas Aviation School, Dallas, Tex., and Cal-Aero Tech, Glendale, Cal.

Completion of the Spartan 60-day course, said to be sponsored by the Canadian government, will fit the student for airline or ferry pilot service, according to Capt. Maxwell Balfour, director. The first Spartan trainees, all of whom already have more than 200 flying hours, declared that they did not expect to see combat duty.

Canadian Air Ministry members said they had no official information on the training plan.

Air Corps Expansion Funds Authorized for Five Fields

Authorizations for construction of additional housing and other facilities for increased Army Air Corps personnel at three fields in the Panama Canal Dept. and two others in the state of Washington were announced this month by the War Dept.

Panama Canal Dept. appropriations include \$437,900 for projects at Albrook Field, \$594,500 at Howard Field and \$371,200 at France Field, while Washington state authorizations total \$1,280,000 at Snohomish County Airport, Everett, and \$1,276,832 at Sunset Field, Spokane.

British Aircraft Carriers

Use Fulmar Two-seaters

The Fulmar, a two-seater low-wing monoplane, has been adopted by the British Admiralty for service on aircraft carriers as a fighter and dive bomber.

The planes, which are powered with an engine similar to that used in the Hurricane, Spitfire and Defiant fighters, are said to be the fastest aircraft in operation with the British Navy.

Air Corps Granted Funds For Manchester Project

Funds totaling \$1,606,550 have been allotted by the War Dept. for construction of temporary buildings and facilities at Manchester, N. H., Airport.

Stationed at the field upon completion of the expansion program will be 1,300 Air Corps officers and enlisted men as well as 370 officers and enlisted men from other Army services.

Construction contracts have not yet been awarded.

Higher Pay to 'Chutists

The War Dept. has announced that all officers and enlisted men in the Regular Army and National Guard (exclusive of Air Corps parachute mechanics), and members of the Officers Reserve Corps who are in parachute battalions or other units for which parachute jumping is an essential part of military duty may be rated as "parachutists" and will be entitled to additional compensation.

Officers assigned to parachute battalions or similar units whose duties require frequent flights in airplanes but who are not rated as parachutists will be placed on flying pay status.

Greater Security in the Air with **LEARADIO TRI-POWR PORTABLE**



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FLY safely, surely, confidently . . . in fair weather or foul . . . with the new Learadio Tri-Powr Portable. This compact, light-weight, sensitive 2-band receiver enables you to receive C.A.A. and airport control tower broadcasts of flying weather conditions and changes . . . of winds aloft, terminal forecasts and local field conditions **plus** all the standard broadcast entertainment programs.

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. . . take advantage of its direction finding characteristics to get an accurate "fix" of your location when you get off your course. The Tri-Powr operates on any electric current—AC, DC, or on its own batteries (which will last more than two hundred hours).

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Export: 30 Rockefeller Plaza, New York, N. Y. Cable: Learavia, N. Y.

Peak Production

(Continued from page 1)

22,635,190 sq. ft. under construction. This increased productive space since Jan. 1, 1940, will cost \$315,545,052. Of the \$315,545,052 which will be the total cost, \$83,356,580 already has been expended and is now producing," Jouett said.

It is estimated that the aircraft manufacturers subcontract 10% of their products, and engine and propeller manufacturers up to 40% of their output. Taking into consideration total employment, there will be approximately 500,000 employees turning out aviation equipment in a fabricated stage by June 1941, the survey shows.

"Our survey indicates a backlog as of Nov. 1, 1940, of \$2,831,665,159 as compared to \$675,432,475 on Dec. 31, 1939. It is estimated that deliveries for 1940 will total approximately \$625,000,000 as compared to \$225,000,000 last year.

Principal accessories manufacturers as of Jan. 1, 1940, had productive space totaling 1,969,793 sq. ft., while today they have 3,748,109 sq. ft., with an additional 2,132,760 sq. ft. under construction. When this program is completed, the accessories manufacturers will have 5,890,896 sq. ft. available for production.

The report indicated further that when present planned construction is completed, aircraft manufacturers will have on their payrolls 267,985 shop employees, the engine manufacturers 65,225 shop employees, propeller manufacturers 7,800 and the principal accessories manufacturers 40,082.

Non-College CPTP Units Turn Out Best Pilots, George Haddaway Says

Non-college units of the Civilian Pilot Training Program are turning out the best pilots while many of the college youth "are sloppy in their ground and flight work, carry a don't-give-a-damn attitude and look upon the program as an opportunity to get something for nothing," George Haddaway, editor of *Southern Flight*, reports in the November newsletter of the Aviation Writers Association. Haddaway said he recently surveyed 14 CPTP units in Texas.

The fact that non-college students are making the best pilots "was substantiated by the instructors, the inspectors and by personally checking into the written work," he said. "Consequently I have come to the conclusion that higher education as we know it in America has little to do with turning out men to fly airplanes.

"Everywhere you stick your nose into this program you'll find substantiation of the old-fashioned philosophy that the boys who are

having to sacrifice to get what they want are doing the best job.

"About 85% of the program is in the colleges and universities. . . . When, at the beginning of the current program, the age limit was upped, the military pledge instituted, and a small fee made mandatory, many operators had great difficulty filling their quotas. Not so with the non-college boys.

"If what's true down here proves out to be a general condition, then it should help knock the pedagogical Army and Navy requirements into a cocked hat and prove once and for all this college education stuff is bosh and twaddle."

The editor of the AWA newsletter adds that some candidates for flight training in the Army Air Corps are being rejected because they haven't had the Army's prerequisite course in ancient history. "The AWA has for months protested against the inane entry requirements of the Army."

The survey shows that production will be started in the new plants early in 1941, and that peak production will be attained next June or July.

Fibre Glass Utilized For Wing Coverings

Fibre glass cloth, developed by Owens Corning Fibreglass Corp., is now being used for wing coverings on Taylorcraft and Piper Cub airplanes as well as in insulation for military aircraft wiring.

Planes are also utilizing gasoline feed lines of du Pont synthetic rubber neoprene bound with fibre glass tape to permit withstanding of the high pressures often developed.

In addition to being non-inflammable, fibre glass is reported to have tensile strength greater than that of steel cable of equal size.

New Coast Guard Air Station

The first Coast Guard air patrol station in northern California was commissioned recently at San Francisco Airport. Under the command of Lt. G. H. Bowerman, the station when brought to full strength will have a complement of 65 men and officers and five planes—two seaplanes, two long-range amphibians and a utility plane.

Luscombe Names Dealers

Miller Flying Service, Columbus, O.; Robert Irvin, Roanoke, Va., and Maynard Dowell, Park Ridge Airport, Chicago, Ill., recently were appointed dealers for Luscombe Airplane Corp. in their respective territories.

NAA Sponsors Film Premiere

The National Aeronautic Association is sponsoring the Washington portion of Metro-Goldwyn-Mayer's "hemispheric premiere" of "Flight Command" on Dec. 17 at Loew's Capitol Theatre, Washington. The picture will also be shown on Dec. 17 in Havana, Mexico City and Toronto, in honor of Pan American Aviation Day.

October Crashes Fatal to 23, CAB Reports

Scheduled U. S. airlines in October transported approximately 300,000 passengers and flew more than 10,000,000 miles without fatality or injury, while non-scheduled commercial and private flying together resulted in 23 fatal accidents, a decrease of 26% from 31 in September, the Civil Aeronautics Board reported Nov. 26. Two of the fatalities were CPTP participants.

The Board stated that 113,745 persons held flying certificates of various types in October, 60,234 being student pilots. Private, commercial, airline and glider pilots accounted for 54,638 of the active certificates.

While 50% of the pilots held student certificates, only 6 or 26% of the fatal accidents were charged to instructional flying. Revealed by the report is the fact that at least 15 of the crashes might have been avoided had pilots exercised more skill or shown better judgment. Nine were caused by spins or stalls, one by an attempt to stretch a glide, one by a collision and four by failure to avoid obstructions near the ground such as trees, power-lines, hills and other aircraft taking off or landing.

HEADS CAA DIVISION

John Easton Succeeds Richard Gasley as Chief of Technical Development Branch

John Easton has been named chief of the technical development division of the Civil Aeronautics Administration to succeed Richard Gasley, who resigned last June 1 to join Murray Corporation of America in Detroit. Easton was chief of the aircraft section and has been acting division chief since June 1. He is well known in the industry and has had a long service in the CAA and predecessor agencies.

Montgomery Farrar, formerly editor of *National Aeronautics*, magazine of the NAA, and for several years chief of the project section of CAA in the technical development division, resigned Dec. 11 to join the Army Air Corps. A captain in the Air Corps, he will serve in the office of the chief.

No Blanket Deferments

for CPT Students—Dykstra

CAA Civilian Pilot Training students cannot be granted blanket deferments postponing their time for service under the Selective Service law because the act prohibits deferments by occupational groups, C. A. Dykstra, Selective Service director, stated Nov. 26, adding however that local boards have authority to grant postponements in individual cases where evidence indicates that the registrant is preparing himself for work necessary to maintenance of "national health, safety and interest."

Institutions specializing in training airplane pilots and mechanics can be of real assistance to registrants and to local boards by offering information regarding men enrolled in their courses, but "such schools cannot guarantee that persons enrolling in them will be deferred from Selective Service training," Dykstra emphasized.

Frizzell in Real Estate

Paul J. Frizzell, formerly coordinator and secretary of the Civil Aeronautics Authority, has announced the opening of an office at 1510 K St., N. W., Washington, D. C., for the conduct of a general real estate service.

Army Will Be 12.8% Air Corps

The Air Corps will represent 12.8% of the composition of the Army when the latter reaches the proposed strength of 1,400,000 men by June 30, 1941, according to an approximate numerical breakdown released by the War Dept. on Dec. 4. Of every 1,000 men in the expanded Army on the above date, distribution among the various arms and services will be as follows:

Infantry	290	Corps of Engineers	61
Field Artillery	141	Cavalry	20
Coast Artillery (Including Antiaircraft)	131	Signal Corps	20
Air Corps	128	Armored Corps	20
Medical Department	76	Ordnance Department	18
Quartermaster Corps	69	Chemical Warfare	4
		Finance Department	2



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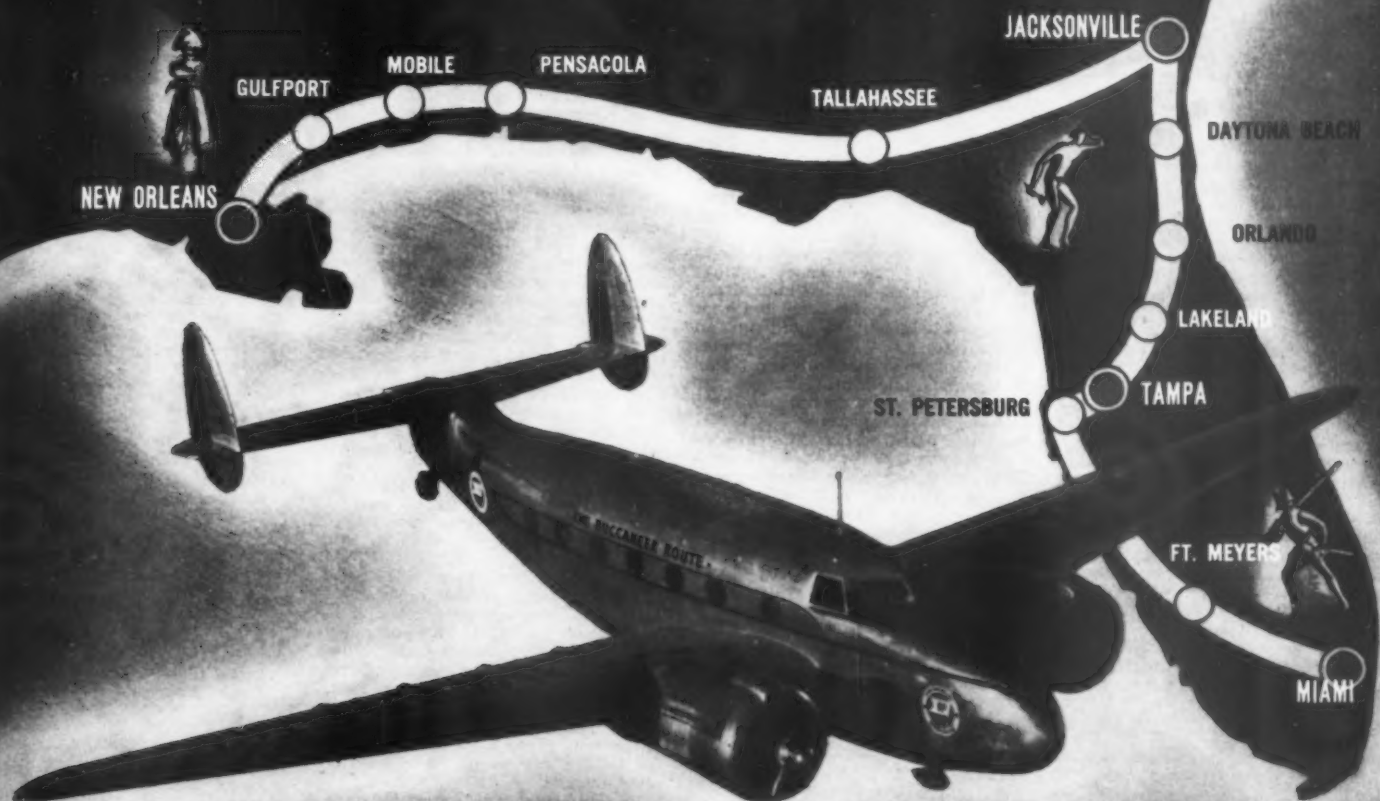
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Cyclones CRUISE THE HISTORIC Buccaneer Route...



NATIONAL AIRLINES' LOCKHEED LODESTARS POWERED BY WRIGHT

Spanish galleons at anchor . . . thin columns of conquistadores struggling through the Everglades in their search for the fountain of youth . . . the hideouts of Jean LaFitte and his pirate crew along the bayous of Louisiana—much of the romantic history of early America unfolds along the route of National Airlines, which links the major cities of the Florida peninsula and continues along the Gulf to New Orleans.

For augmented service over what it aptly terms "The Buccaneer Route", National is placing in service a fleet of 260 m.p.h. Lockheed Lodestars. Powered with 1200 h.p. Wright G-200 Cyclones, they combine the comfort and record performance of this outstanding transport type with the long-proven reliability of the Wright Cyclone Engine.

WRIGHT AERONAUTICAL CORPORATION
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WRIGHT *Aircraft* **ENGINES**

Airlines Give Up Equipment

(Continued from page 1)

installation in four-engine bombers going to England.

Principal bottleneck is engines of the 1200-hp. Wright Cyclone G-202 type. There is no shortage of any other type of engine except the Allison, and the only reason for shortage of the G-200 engines is because no orders had been placed by either the Army or the British. With only airline orders on hand, Wright Aeronautical was naturally not prepared for overnight demands for this particular type.

The agreement means that there will be little, if any, new equipment placed on the airlines between now and next summer. Until that time there will be a shortage of engines. But it appears likely, unless war developments take a different turn, that the airlines will be able to put into service during 1941 about half, and possibly more, of the transport planes they had on order. This amounts to normal expansion. Deliveries will be prorated among the airlines in almost direct proportion to the number of planes they had on order, although the Priorities Board of the National Defense Commission will consider individual cases on merit.

Transcontinental & Western Air Inc. appeared to be one of the lines hit severely by the agreement, partly because it had previously agreed to sell its existing engines to the British. With new replacement engines taken over by the Army, it appeared that TWA might have to ground some of its ships, but a satisfactory agreement was

worked out. TWA will obtain almost immediately two DC-3 transports out of the industry allotment of 52, and will be permitted to install engines.

Three airlines took delivery of one DC-3 transport each on Friday, Nov. 29, just before the deadline. They were United Air Lines, Northwest Airlines and Delta Air Corp. United has 11 more ships on order and Delta has four.

Of prime importance was the assurance by the government that no effort was being made to curtail airline operations and that provisions would be made to assure them of normal expansion and replacements.

Although Lockheed was told to cease delivery of 67 transport planes of the Lodestar, Electra and Model 12 types, it is not anticipated that there will be future hold up on these planes. Transport planes destined for service on U.S. lines in Central and South America are likewise not to be restricted. These include six new Boeing 314A flying boats being built for Pan American Airways, three large Vought-Sikorsky flying boats for American Export Airlines, and orders for Lockheed and Douglas transports for those companies. Most of the Lockheed planes are destined for points outside the U.S.—Canada, the East Indies, Africa and South America.

On the industry side Col. Edgar S. Gorrell, president of the Air Transport Association, has been the mainspring of activity, while the

Cooperation

In deference to need of the Army Air Corps for transport planes, United Air Lines on Nov. 21 diverted to the AC one of 10 Douglas DC-3 craft scheduled for delivery by Douglas Aircraft Co. last month.

"United is pleased to make this diversion in the interest of national defense, and this is only one of the instances which demonstrates how this nation's modern air transport system is an important second line of defense," said W. A. Patterson, United president.

spokesman for the government has been Merrill C. Meigs, publisher of the *Chicago American*, now on loan to the Defense Commission as director of the aviation division.

Despite government statements to the contrary, it is well known that construction of transport planes has not interfered with, and will not interfere with, military production. Manufacturing executives have been unanimous that cessation of commercial production will not speed up military production by five minutes. Men would have to be laid off, in fact, if commercial production should be stopped.

On the other hand, there is a shortage of one type of engine, which is not the fault of the manufacturer. Once the engine bottleneck is eliminated there should be no shortage of commercial equipment unless the Army decides it wants more transports than it now has on order.

Experimental work will be permitted to continue, although possibly at a lessened pace. About 60 large Douglas DC-4 transports are on order. By agreement, the Douglas company will be permitted to build a prototype during 1941, with production staved off until 1942. There is some talk that the Army may place a substantial order for DC-4's and would have priority on deliveries.

In September the scheduled airlines reported they had 339 transports in operation. Since then the total has been increased but sales of transports to the British have kept the increase small.

C. V. Whitney Accepts Presidency of American Arbitration Association

C. V. Whitney, board chairman of Pan American Airways, recently accepted the presidency of the American Arbitration Association, succeeding Franklin E. Parker Jr.

Nearly all major domestic air transport lines use the facilities of the 14-year-old non-profit organization, which maintains 7,000 volunteer arbitrators in the U. S., Canada and Latin America.

LOGAN LEAVES AMERICAN Opens Own Public Relations Office in Capital

A. Martin Logan has resigned from American Airlines, where he has served as assistant to the president for two years, and has opened his own office at 1700 I Street, N. W., Washington, as public relations counselor.

Logan was assistant to the president of TWA, Inc. prior to his going with American. With the latter airline he handled company matters both in Washington and along the system. He will continue to serve American as one of his accounts.

CCA Retains Hester

Clinton M. Hester, former administrator of the Civil Aeronautics Authority and now a practicing attorney, has been retained as Washington resident counsel by Canadian Colonial Airways.

Lockheed Building 82 Transports

Lockheed Aircraft Corp., Burbank, Cal., has 82 transport planes of the Lodestar, Electra and Model 10 types in varying states of construction, according to a report made available at the time the Priorities Board of the National Defense Commission ordered commercial deliveries stopped on Nov. 28. Lockheed deliveries are expected to continue, however, following the brief interruption while the commission analyzed commercial production.

The following Lodestar planes are in varying stages of completion from subassembly to final assembly for delivery between now and Jan. 31, 1941:

South African Airways	9
British Overseas Airways	8
Trans-Canada Air Lines	6
Pan American Airways	8
Continental Air Lines	3
National Airlines	1
Dixie Airlines	2
Vaucuse Aviation	1
U. S. Navy	1
Private purchasers	3
	42

The following Lodestars are "in detail" just prior to the subassembly stage for delivery by Aug. 1941:

Catalina Airline	2
British Overseas Airways	1
Dixie Airlines	3
Dutch East Indies	20
	26

The following Model 10 (Electra) planes are in production for delivery between now and Mar. 30, 1941:

Linea Aerea Nacional (Peru)	2
Linea Aerea Nacional (Chile)	4
Linea Aeropostal Venezuela	3
	9

The following Model 12 transports are being built for delivery between now and Mar. 13, 1941:

Brazilian Army	4
Skycraft Corp.	1
	5

The only military plane on order at Lockheed for the U. S. is the P-38 pursuit. Employment at the various plants in Burbank has reached 18,000.

Inland Air Lines Denied Stop at Alliance, Neb.

Cost of the proposed operation to the government would outweigh value of the service to be rendered, the Civil Aeronautics Board ruled, Dec. 3, denying the application of Inland Air Lines Inc. for inclusion of Alliance, Neb., as intermediate stop on AM-35, Cheyenne, Wyo.-Huron, S. D.

The population which would be served by the proposed stop at Alliance is comparatively small, about 8,500, the Board pointed out, and air transport service is now available at Scottsbluff, a distance of 55 miles over paved highway.

"Authorization of air service to Alliance would cost the government approximately \$4,654 annually in mail compensation alone," the decision explained. "This would represent more than one dollar for each dollar of non-mail revenue which the applicant estimated would be received for transporting passengers and property incident to the Alliance operation. Furthermore, we find that, on the basis of the applicant's estimates, the proposed service even with the mail pay for the additional mileage would result in a net loss to the applicant (\$591 loss for first year)."

CAB Examiner Lawrence J. Koster on Oct. 19 had recommended approval of Inland's application.



★ Public confidence in commercial enterprises is generated by performance. It has to be earned from scratch. It is to the everlasting credit of the air transport industry that it hasn't asked for public confidence. It stuck to its task until that confidence was won. In carrying on for the future, a similar devotion to right principles will be a source not only of pride but of security and solidarity for this fastest-growing of all American industries.

AMERICAN AIRLINES Inc.

ROUTE OF THE FLAGSHIPS

Lines Receive 87 New Planes in 1st 10 Months of 1940; Sold 19 to Babb

During the first 10 months of 1940, the following airplane and engine deliveries were reported by U. S. scheduled airlines to the CAB. This summary does not include Pennsylvania-Central Airlines' report for October since it has not yet been received by the CAB.

Airline	Aircraft	Engines
American	28 Douglas DC-3	71 Wright
Braniff	4 Douglas DST	10 Wright
Chicago & Southern	5 Douglas DC-3	14 Wright
Continental	3 Lockheed 18	9 Pratt & Whitney
Delta	1 Wright	1 Wright
Eastern	9 Douglas DC-3	25 Wright
Mid-Continent	3 Douglas DST	10 Pratt & Whitney
Northwest	3 Lockheed 18	14 Pratt & Whitney
Penn-Central	5 Douglas DC-3	14 Wright
TWA	4 Boeing 307-B	63 Wright
United	6 Douglas DC-3	38 Pratt & Whitney
Western Air Express	2 Douglas DST	4 Pratt & Whitney
	4 Lockheed 18	5 Pratt & Whitney
	1 Douglas DC-3	
Totals	87	274

Summary by Type

Aircraft	Engines
63 Douglas DC-3	76 Pratt & Whitney
9 Douglas DST	198 Wright
10 Lockheed 18	274
5 Boeing 307-B	
87	

Sales of aircraft and engines by U. S. airlines to Charles Babb & Co., international brokerage, for resale to Britain or Canada, for the first 10 months of 1940, are:

Airline	Aircraft	Engines
Braniff	2 Lockheed 10	4 Pratt & Whitney
Chicago & Southern	2 Lockheed 10	4 Wright
Continental	2 Lockheed 12-A	4 Pratt & Whitney
Eastern	2 Douglas DC-2	9 Wright
Inland	1 Boeing 247-D	2 Pratt & Whitney
Mid-Continent	1 Lockheed 10	2 Pratt & Whitney
Northwest	3 Lockheed 10	6 Pratt & Whitney
Penn-Central	6 Boeing 247-D	12 Pratt & Whitney
United		1 Pratt & Whitney
Totals	19	44

Summary by Type

Aircraft	Engines
8 Lockheed 10	31 Pratt & Whitney
2 Lockheed 12-A	13 Wright
7 Boeing 247-D	44
2 Douglas DC-2	
19	

Note: This summary does not include sale of eight DC-2 planes by Eastern Air Lines in November and an additional sale by American Airlines also in November. A further summary will be published next month.

Railroads Seek First Intervention in Airline New Route Proceeding

For the first time since passage of the Civil Aeronautics Act, railroads are seeking Civil Aeronautics Board permission to intervene in an application filed for new air service.

Three railroads—Louisville & Nashville Railroad Co., Atlanta & West Point Railroad Co., and The Western Railway of Alabama—have asked the CAB for permission to intervene in the application of Seaboard Airways, subsidiary of Seaboard Air Line Railway, for routes between Boston and Miami and Boston and New Orleans via certain intermediate points.

After stating that there is "similar and adequate aircraft service" in the territory, the railroads state that granting of Seaboard's application would result in an "unnecessary and wasteful duplication of transportation facilities" and would "displace and divert traffic and revenues from the rail carriers."

The three railroads "and their rail connections have pioneered in, developed, and now maintain adequate transportation facilities and synchronized schedules of operation for the carriage of mail, passengers, express and freight to and from all points now sought additionally to be served by applicant," the petition states.

"Petitioners aver that they and their rail connections presently meet the requirements of the public convenience and necessity and that

they are fit, willing and able to provide additional transportation facilities and schedules as future needs therefor may dictate."

Establishment of the route "would displace and divert traffic and revenues from the rail carriers," it was claimed, thus "handicapping existing transportation agencies in their efforts to effectuate compliance with the national transportation policy recently declared by the current Congress of the United States, which concludes as follows: '... all to the end of developing, coordinating and preserving a national transportation system by water, highway and rail as well as other means, adequate to meet the needs of the commerce of the United States, the postal service and of the national defense.'" (quotation from the Transportation Act of 1940. Italics supplied by petitioners—ed. note).

Would Operate Airport

An offer to take over the operation and maintenance of a proposed \$5,500,000 airport at Detroit is reported to have been made to the city by American Airlines, Pennsylvania-Central and TWA. Annual saving to the city is estimated at \$65,000.

Maj. Reed Landis, AA regional vice president; Lawrence Fritz, TWA vice president, and Frederick Crawford, PCA vice president and treasurer, made the offer, it was said.

Shielding's Job ...



Shielding must prevent interference to radio reception; must be light, flexible, corrosion resistant, easily disassembled; must afford lasting protection. Pioneer designers for aircraft, ordnance and marine equipment, Breeze is ready for present defense requirements with shielding which does its job.

BREEZE MARK



Standard Breeze Conduit
in Sizes from 3/8" to 2 3/4" I.D.

Breeze
CORPORATIONS INC.
NEWARK, NEW JERSEY

WHY BOEING SCHOOL GRADUATES "FIT INTO" YOUR ORGANIZATION



In the Meteorology Laboratory, just one of 17 modern shops and laboratories, Boeing School students learn how to decode weather reports, plot signals, draw weather maps, analyze and forecast weather phenomena.

Writes Walter E. Gilbert, Divisional Superintendent, Canadian Airways, Ltd., "There seems to be a 'certain something' your school imparts to the men trained at Oakland which gives them not only the sheer technical skill but also a degree of poise and balance which makes it possible for them to fit into an organization." That doubtless is one reason why Boeing School graduates are successfully employed today in 48 different aviation organizations.

1. Boeing School students—in small classes—are taught every detail of present-day aeronautics in 17 modern shops and laboratories—U. S. Gov't-approved in all departments. Boeing School trains with the heavier commercial-type machines—in six different types including the modern multi-engine transport. 2. Boeing School men are trained in 11 Career courses. Whatever your needs, there is a Boeing School grad trained to meet them. 3. From the very start of their training, Boeing School students learn actual instrument flying under the hood in an aeroplane—also in the school's Link trainer. 4. Boeing School students learn to build everything from radio equipment to finished planes.

Get in touch with this modern school now for your future needs.

BOEING SCHOOL OF AERONAUTICS
A DIVISION OF UNITED AIR LINES

\$120, Hangar No. 5, Airport, Oakland, Calif.

In ... months we shall probably need the following personnel. Please send us brief biographies of men likely to be available then.

Name Company
Address

C&S Granted Houston-Memphis Line; Eastern Gets Evansville-Louisville

CAB Vote is 3 to 2 on 513-Mile Route, Branch and Baker Favoring Braniff; All Memphis-Louisville Applications Denied

The Civil Aeronautics Board, in a 3-2 decision, announced Dec. 6 that it had awarded a 513-mile Houston-Shreveport - Pine Bluff - Memphis mail - passenger - express route to Chicago & Southern Air Lines, and had granted Eastern Air Lines an extension of its AM47, St. Louis-Evansville-Nashville, to furnish service between Evansville and Louisville.

Service between Memphis and Louisville is not required by the public convenience and necessity, the CAB said, denying all applications for this segment.

Award of Houston-Memphis to C&S was voted by CAB members Edward P. Warner, Oswald Ryan and Grant Mason. In a dissenting opinion, Chairman Harlee Branch and Member George Baker, although agreeing with the majority on all other points, claimed that Houston-Memphis should have been awarded to Braniff Airways, one of the other applicants.

The CAB examiners, in their proposed report, had recommended that Houston-Memphis be awarded to C&S and that Memphis-Louisville be denied to all applicants. They did not discuss the award of Evansville-Louisville to EAL.

Required by C & N

"Direct airline service between Houston and Memphis would provide a link between the world's largest cotton market and the larg-

est cotton exporting port, and between the extensive oil development of northern Louisiana and the refining and shipping interests centered in Houston," the decision said.

"At the present time air service is available between the cities which would be served by the proposed Houston-Memphis segment, except Pine Bluff. However . . . the existing service is circuitous when compared with airline distances. Substantial savings in mileage, times and fares would be made possible by the establishment of this route, and the conclusion appears warranted that a substantial volume of passenger traffic would be developed.

Saving in Mileage

"In addition, the proposed line would establish a new through route from the southwest to the metropolitan areas in the north and northeast, with a saving in mileage of more than 100 miles. The establishment of the proposed route, providing as it will a more direct service between points now having airline service and a shorter route for long-haul traffic, will compete with existing airlines.

"The resultant diversion of traffic might increase the amount of mail compensation required for certain existing routes to comply with the provisions of section 406(b) of the Act; but there is an offsetting possibility in any such case that the amount of compensation needed on other already existing routes might be reduced by the beneficial effect upon their traffic volume and upon the connections provided by the new route.

"While the proposed operation would constitute a competitive service to the existing route of Braniff to Chicago and over Eastern to the northeast, it would also act as a feeder to the north-south line of Chicago & Southern, opening to that carrier a new source of traffic for that route. In the present case, it appears unlikely that the establishment of the proposed route would have any very substantial effect upon the total volume of mail compensation required on existing routes."

Concerning Memphis-Louisville, the decision pointed out that American Airlines now provides service between those points via Nashville over a route only 14 miles longer than the proposed line.

"The establishment of a route between Evansville and Louisville, involving only about 100 additional route-miles, would meet the predominant need of Evansville for air transportation to Louisville and the northeast and in addition would provide a direct route between St. Louis and Louisville," the CAB said. "Travel by air between the last-named points is possible now via Indianapolis, but the route requires a change of carrier and is about 70 miles longer than a direct route would be via Evansville."

C&S Will Develop Line

In choosing C&S, the majority said: "If the proposed route is to provide that constructive competition which will be in the interest of a sound development of the air transportation industry, it should not be operated by a carrier now operating a competing service.

One of the Most Modern



Here is a view of United Air Lines' new \$200,000 operations building and hangar at the mile-square Portland-Columbia Airport, Portland, Ore., now in regular use. The structure ranks as one of the most modern in the country, with numerous innovations for the handling of passengers, cargo and planes. Native woods and other materials of the region were employed in the lobby to carry out the relation of the building to the Portland and Oregon territory served by United. According to Zay Smith, UAL's designer, similar treatment is planned for other airport buildings of the company as they are newly built or redecorated.

"Eastern admittedly is not interested in developing any through traffic over the new route which would be established to the northeast, and it is not reasonable to suppose that Braniff would seek to divert through traffic from Texas points to Chicago over the new route from its present system, and thereby lose a portion of the long-haul traffic that it now has. Chicago & Southern, on the other hand, may be expected to seek to develop the maximum traffic on the new route regardless of its ultimate destination.

"If air carriers are to be prevented from inaugurating improvements in existing service solely as a protection to a particular carrier or carriers, the development of an adequate air transportation system will be retarded. . . . It is of the greatest importance . . . to maintain a properly balanced system of air transportation in every section of the country in order to encourage constructive competition."

Concerning Evansville-Louisville, all five members said it was "apparent that Eastern is the logical operator . . . Eastern's operation . . . would enable it to conduct a single-company service between St. Louis and Louisville, thus serving a substantial traffic demand with the addition of only about 100 route miles."

Dissenting Opinion

In dissenting, Branch and Baker said: "The majority appears to base its choice of Chicago & Southern on the fact that that carrier will seek to develop the maximum traffic on the new route regardless of its ultimate destination. Let us look at this traffic: The potential business for the route from Houston to Memphis in addition to that local to the route will flow in or out of Memphis to or from Washington and New York to the east; Kentucky, Indiana and Ohio cities to the northeast, and St. Louis and Chicago to the north. The only traffic, however, which Braniff would not be equally interested in developing is that between Chicago itself and Houston, now served by Braniff's own through service.

"If the choice be between Chicago & Southern and Braniff, the issue rests then primarily upon the question: Is there need for additional one-company service between Chicago and Houston? It is our belief that neither the record nor a wise

national air transport policy indicate that additional one-company service . . . is so necessary as to offset other considerations.

"A second consideration in favor of Chicago & Southern is that it could supply one-company service from St. Louis to Houston. It is our belief, however, that neither the record nor a wise national air transport policy indicate that one-company service . . . is so necessary as to offset other considerations."

Branch and Baker also said that "it appears clear that granting of the certificate to Braniff would in no way adversely affect the present Chicago & Southern operations. On the contrary, Braniff would feed traffic to Chicago & Southern, as well as to American, at Memphis and be fed in return at that point by Chicago & Southern as well as American. It is equally apparent that granting the route to Chicago & Southern would to some degree adversely affect Braniff and Eastern."

Portion of Pan Am's FAM-5 Transferred to UMCA by Board

Transfer of that portion of Pan American Airways Inc.'s FAM-5 between Cristobal, C. Z., and Turbo, Colombia, to Ura, Medellin and Central Airways, Inc., inclusion of Balboa, C. Z., as an intermediate stop, and extension of the route for persons and property to Medellin, Colombia, was authorized by the Civil Aeronautics Board in an order given presidential approval Nov. 26 and released Dec. 2.

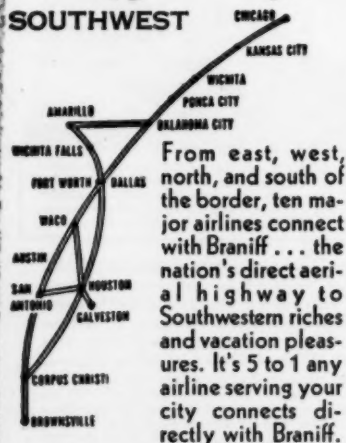
Operations to Balboa and Medellin were added because the volume of traffic to these points was judged sufficient to require air service, since other transportation methods there are slow and infrequent. Right to carry mail under U. S. authorization between Turbo and Medellin was denied because this part of the route is under control of the Colombian post office and the Board found no reason to add payments by the U. S.

UMCA originally had applied for a certificate to this route, which it has been operating as a locally organized subsidiary of Pan American Airways since July 1932, under the "grandfather clause" of the Civil Aeronautics Act, but because of uncertainty as to its ability to meet citizenship requirements the company shortly thereafter filed a second application for a new route authorization. At a later date, UMCA and Pan American Airways Inc. filed jointly the request for transfer of the operating certificate.

Pan American Airways Inc.'s certificate was modified to eliminate the Cristobal-Turbo transferred segment.

10 Great Airlines Lead

To *Braniff*

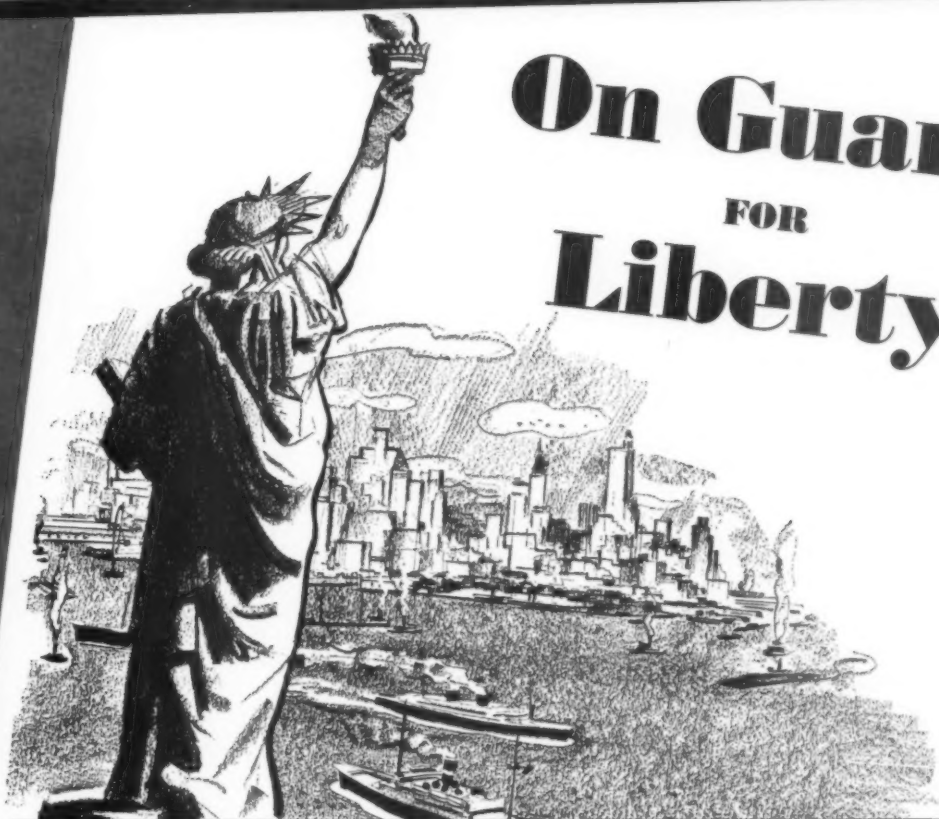


Hy **BRANIFF**
Southwest
36 FLIGHTS DAILY TO
THROUGH & FROM THE

AMERICAN EXPORT LOOKS UP AND AHEAD!

Launching new ships for its fast-growing fleet . . . today maintaining the only American vessels on regular schedules between the United States and Europe . . . American Export Lines, through its associate company, American Export Airlines, now nears realization of the FIRST NON-STOP TRANSATLANTIC COMMERCIAL FLYING SERVICE.

These pages give highlights of American Export's foresighted expansion and improvement program—a program that is helping to build the national defense today and which will serve America well in the international trade of tomorrow.



On Guard FOR Liberty

IN 1914, ninety per cent of America's foreign trade was being handled by foreign ships. Suddenly, when World War No. 1 started, these ships were not available for American Commerce. America was left high and dry with a merchant fleet less than one-half what it had been in Civil War days! Docks and warehouses were clogged as this country learned a costly lesson from its greatest shipping crisis.

Today, by contrast, America has a strong, modern Merchant Marine ready, on call, to support the needs of the Navy.

Credit for the development of this Merchant Marine belongs to the U. S. Maritime Commission, to American seamen, to private ship-builders, ship operators and investors . . . and, perhaps most of all, to the American people. But special credit should go to those who

choose in peace time to follow the flag at sea . . . those Americans who travel and ship on American vessels.

The result is, Uncle Sam, with the biggest Navy in the world (and getting bigger), now finds himself with a strong Merchant Marine ready to serve as an auxiliary to his vast sea power.

Today, in a world where war has all but "blackened out" international trade, American Export Lines' big, busy fleet is keeping the spark of commerce alive, helping to maintain America's proud tradition at sea. Combination passenger and freight ships of this fleet are the only American vessels now operating on regular schedule in the North Atlantic, with weekly sailings from New York and Lisbon—the last link between the United States and war-torn Europe. And American Export's new freighters move over

the great trade route to India, bringing back materials vital to national defense.

American Export expresses its appreciation to those who have used its services and assures them that its services in the future will be continually improved. At present, a three-point program is in operation. More new, fast, advanced-design freighters are being built . . . huge airliners for de luxe express service for passengers, mail and commodities are under construction . . . and plans are under way to build new, fast passenger liners to replace the existing combination passenger and freight ships.

As the big American Export fleet rides the swells of the winter seas, each ship carries the promise (if the flag she displays—a stronger America—for defense now, and for the future peace and liberty of the world.

American Export Lines
American Export Airlines
25 BROADWAY, NEW YORK CITY



TIME AND TIDE WON'T WAIT

• A giant flying boat lifts itself from the sea . . . non-stop, New York to Lisbon . . . using less than 20 hours to cross the ocean Columbus took some 70 days to navigate. • Here in this first non-stop transatlantic flying service, planned for inauguration next summer, American Export makes a major contribution to air transportation. By the use of long-range equipment, schedule delays frequently encountered at Horta will be eliminated.

KNOWING that now, as always, nations prosper in direct relationship to the improved systems of transportation they can develop, American Export moves toward its constant goal — faster and better facilities for commerce in the air lanes as well as on the sea. For over 20 years the big fleet of American Export Lines steamships called at busy ports in the Mediterranean and Black Seas, building American trade in the rich markets of the old world.

This company, four years ago, looking to the future, adopted a definite program of modernization and expansion. There were two broad objectives:

- (1) To give American Export every modern facility for handling passengers, freight and mail . . . to help make America supreme in international commerce.
- (2) To follow a building and operating program which would best serve the national defense.

To attain these objectives, a threefold plan of action was begun: (1) Build new, fast, advanced-design freighters; (2) Build huge airliners for de luxe express service for passengers, mail and commodities; (3) Use the existing combination passenger and freight ships for the more leisurely movement of passengers, regular mail and cargo.

Speed was the keynote of this program — and speed marks the manner in which American Export is turning plans into reality.

Today, seven of the new fast freighters are at sea, maintaining "time-table" schedules on the great trade route to India, and others are being completed.

Today, great four-engine, long-range flying boats are under construction for the non-stop transatlantic service approved by the Civil Aeronautics Board and the President of the U. S. Plans for additional huge aircraft are under way.

Today, the combination passenger and freight ships are performing a vital service between New York and Lisbon . . . the only American vessels operating on regular schedule to Europe. And now this part of the program has been still further stepped up . . . American Export is preparing to build new, fast passenger liners to replace the existing combination passenger and freight ships.

In defense preparation and in future international trade, time and tide won't wait. Every hour of every day is important. That's why American Export is speeding up its program for faster and better transportation facilities — for America of today and tomorrow.

American Export Lines
American Export Airlines
 25 BROADWAY, NEW YORK CITY



Down the Ways to a Stronger U. S. Merchant Marine

Last Saturday, in the Fore River Yard at Quincy, Mass., the new S. S. EXAMINER moved down the ways to take her place in America's rapidly growing Merchant Marine. She hit the water at the same time the S. S. EXECUTOR, a new sister ship, steamed out of New York on her maiden voyage to India.

These new vessels, capable of 19½ knots, are equipped with every modern device for the handling of cargoes and the comfort of crews. They are part of the \$30,000,000 ship-building program now being rushed to completion by the American Export Lines in cooperation with the U. S. Maritime Commission.

Eight sister ships have been launched at Quincy, and four more ships are now being built at Bath, Maine. With this addition to its present big fleet, American Export Lines is helping in the nation's defense—

backing up Uncle Sam's navy by building up Uncle Sam's Merchant Marine.

Already transferred for the direct use of the Navy is one of American Export's ace liners, the EXOCHORDA. And four other ships, building for this company at Pascagoula, Miss., also have been released to the Government.

Looking further to the strengthening of the nation's defense and the development of the nation's commerce, American Export Airlines is building giant four-engined flying boats designed for use in regular, non-stop transatlantic air service this summer. And plans are also underway for the construction of huge land planes with which American Export proposes to operate regular schedules over the "short-cut" route from New Orleans to Central America and the Canal Zone.

With "full speed ahead" on its building program—helping to make this country strong at sea and in the air—American Export assumes its present emergency duties in a world plagued by war.

Today the ships of this growing fleet are the only vessels under the Stars and Stripes on regular schedule to Europe, with weekly sailings to and from New York and Lisbon, via Bermuda. And other American Export liners keep regular schedule on the great trade route to India by way of the Cape of Good Hope, bringing back from the Far East materials vital to the building of equipment for national defense.

In shipyard and airplane factory, on the high seas and in the sky, American Export is helping to show the world that the United States is strong—and rapidly getting stronger!

American Export Lines
American Export Airlines
 25 BROADWAY, NEW YORK CITY



"Life-Line" to Europe

Cutting the waters of the North Atlantic . . . eastward and westward on *regular weekly schedule* . . . ships of the American Export Lines today keep the "life-line" to Lisbon open—the last link between the United States and bomb-battered Europe.

As war paralyzed port after port, the hopes and needs of millions depended on American Export liners . . . the only American flag ships on regular schedule between the world's most important commercial continents.

The cargoes moving away from New York today are raw materials and manufactured products from American farms and factories . . . keeping the spark of commerce alive. And on return voyages, the ships bring European and African cargoes—goods essential to the national defense and to the maintenance of the American standard of living.

Also moving along the "life-line" to and from Europe is the great bulk of the international mail . . . tons and tons . . . carried by American Export Lines on regular schedule.

On the passenger lists of these vessels are those who carry on the world's work under severe and trying conditions. They travel with the comforting

knowledge that American Export liners operate on a regular weekly schedule. Thousands of Americans can give dramatic testimony for the safety and certainty of this passenger service.

Part of the American Export Lines' fleet of 29 ships also provides regular service over the vital trade routes to India, bringing back to this country vast quantities of materials indispensable to the national defense. And this company is rushing a \$30,000,000 shipbuilding program that will add still more strength to the U. S. Merchant Marine.

Looking upward and onward, the American Export Airlines has plans to operate a transatlantic air service, and has a Certificate of Convenience and Necessity issued by the Civil Aeronautics Board, and signed by the President of the U. S. Operating details are being completed and great four-engined passenger, mail and freight flying boats are under construction. With this program, shipping by air and sea will be operated for the first time under a co-ordinated management.

By water and by air . . . in peace-time commercial pursuits or in a national emergency, American Export is prepared to serve.

American Export Lines

American Export Airlines
25 BROADWAY, NEW YORK CITY

CONGRESS ASKED TO PROBE CRASHES

United Accident Kills 9 at Chicago;
Anti-Reorganization Sentiment
Expressed

Hearings opened last week to determine the probable cause of the crash of a United Air Lines' DC-3 near Chicago Municipal Airport on Dec. 4, killing nine persons and injuring six.

In Washington, there were indications that anti-CAA reorganization sentiment was growing. Representative Carl Hinshaw (R., Cal.) on Dec. 5 introduced a resolution calling for appointment by the Speaker of the House of a select committee to investigate the three recent airline accidents.

David L. Behncke, president of the Air Line Pilots' Association, urged reestablishment of the Civil Aeronautics Authority as an independent agency, and the resurrection of the Air Safety Board.

The crash, United's second in 31 days, resulted in the death of all three crew members: Capt. Philip C. Scott, First Officer George S. Young and Stewardess Florence M. Little. Lee Haneline, UAL's eastern superintendent of reservations, also was injured fatally.

Among the passengers killed was Wilbert J. Austin, president of the Austin Co., industrial engineers, Cleveland.

The plane crashed near the Chicago airport from a height of about 150 ft. while approaching for a landing. The flight left New York at 10 a.m. and was almost two hours late. Pilot Scott changed airplanes at Cleveland, reportedly because the one used on the New York-Cleveland leg was not functioning properly.

Press reports from Chicago indicated that ice may have caused the ship to lose flying speed and crash, but United officials denied this, pointing out that other planes were operating at the time of the accident.

In introducing his resolution, Rep. Hinshaw said "since the effective date of reorganization plan 4 and the abolition of the Air Safety Board and the transfer of the Civil Aeronautics Authority to the Department of Commerce, three major airline disasters have occurred . . . I am offering a resolution to the House calling for an investigation into the causes of these disasters

Credit for Airline Tickets Available Early in 1941

Credit for airline tickets is expected to be available about the first of the year through an arrangement with Travelers Credit Corp., same company which entered into an agreement with the railroads last summer whereby \$50 or more in transportation may be purchased on installments.

No collateral will be necessary, the passenger's signature sufficient, and no down payment will be demanded.

and into other questions which may relate thereto. I think that will cover any relationship between the reorganization of the CAA and the recent record of accidents. You will recall that for the 13-months period before the reorganization and after the creation of the CAA and its independent Air Safety Board there was not a passenger fatality on American commercial airlines."

Behncke stated that "in plain language, airline pilots are of the unanimous opinion that again to establish a maximum degree of air safety it is first necessary to reestablish the Civil Aeronautics Authority as an independent agency, and there must be a resurrection of the air safety watch dog—the independent Air Safety Board." At their Chicago convention early in December, the pilots adopted a resolution to this effect.

United Starts Pilot School at Tracy, Cal.

Establishment of a specialized pilot training school at Tracy, Cal., as an adjunct of the company-owned Boeing School of Aeronautics, has been announced by United Air Lines as a move toward controlled airline instruction of future commercial co-pilots.

College and university students who have had two or more years of college training with a major in engineering, or emphasis on mathematics or physics, and who have successfully completed the first and second stages of the CAA Civilian Pilot Training Program, will be considered as qualified for instruction at the Tracy school, according to R. T. Freng, director of United's flight operations. Freng indicated that two classes of 40 candidates already are in training with a third group soon to be started.

Those qualifying during the first four months at Tracy will be transferred to the Boeing School at Oakland for final training in handling multi-engine planes, after which the successful participants will be assigned to co-pilot positions with United.

Survey Flight to Panama Completed by American Export

The first of what the company calls "a series of scientific studies of upper air flying weather conditions over the Gulf of Mexico" was completed Nov. 22 by American Export Airlines, with its twin-engined Consolidated flying boat, "Transatlantic."

The plane, under the command of Capt. Charles F. Blair Jr., the airline's chief pilot, flew across the Gulf of Mexico from New Orleans to Belize, British Honduras, thence to Cristobal, C. Z., and return.

Among conditions studied were direction and velocity of winds aloft, relation of pressure systems on the Continent, cloud formations, temperatures, icing conditions and certain pertinent sea conditions.

With Capt. Blair were Capt. Richard McMakin, Capt. Richard Mitchell, First Officer Thomas Terrill, Flight Engineer Michael C. J. Doyle, Flight Mechanic Ralph V. Carlson, Radio Officer Michael McFarlan, Radio Officer H. J. Fitzgerald, and Wayne Thomas, aviation editor, Chicago Tribune.

Supervising the flight from Export's new offices at New Orleans Airport were W. Sanger Green, research engineer; Lt. Comdr. Vernon O. Clapp, U.S.N. (ret.), chief meteorologist; Thomas W. Jones, assistant operations manager, and Thomas Rodenbaugh, station manager.

In Central America, D. G. Richardson, vice-president and operations manager, cooperated with the staff of TACA, recently purchased by Export, in monitoring the flight.

American Export Airlines Sponsors S. A. Programs

Role of aviation as an aid to improved Pan-American relations was strengthened with sponsoring by American Export Airlines Inc. of a 52-week series of short-wave radio programs to South America, starting Nov. 24. Contract with the NBC international division provides for three 15-minute broadcasts weekly, in Spanish, Portuguese and English, over international stations WRCA and WNBI.

Under the title of "American Aviation," the programs will be given principally to spreading the story of aviation in North America throughout Latin America, although the series also will cover the progress of aviation, private, commercial and military, in countries to the south. The Spanish version is heard on Sundays, the Portuguese on Tuesdays and the English on Thursdays.

N. W. Ayer & Son Inc., New York agency, is handling the account.

J. C. Roberts to Detroit

J. C. Roberts, for three years advertising manager for Transcontinental & Western Air Inc. at Kansas City, has joined the D. P. Brother & Company, advertising agency in the General Motors Bldg., Detroit. Roberts was formerly in automotive advertising work and returns to this field to head the sales promotion group in the Oldsmobile account.

PCA Promotes 2 Pilots

Two Pennsylvania-Central Airlines pilots, James C. Graham and James T. Rinker, have been promoted to assistant chief pilots, J. H. Carmichael, vice-president in charge of operations, has announced.

Graham, who joined PCA as co-pilot in 1933, will serve as assistant to C. W. Weiblen, chief pilot of the western region at Detroit, while Rinker, with the airline since 1935, will assist Muriel Estes, chief pilot of the eastern region at Washington.

Each of the new assistant chief pilots has flown more than 1,000,000 miles.

AE Meteorologist



Lt. Comdr. Vernon O. Clapp
Chief meteorologist of American Export Airlines, who directed upper air weather observations in the company's recent New Orleans-Panama Canal Zone survey flight.

Los Angeles-Denver Line Sought by WAE

Application for a route from Los Angeles to Denver via Las Vegas and Grand Junction has been filed with the CAB by Western Air Express.

William A. Coulter, WAE president, said the route would provide an airway to the east shorter by 222 miles, and would cut flying time to Chicago, New York and other eastern cities by two hours.

Connections for the east would be made with United Air Lines at Denver.

Albrecht Heads United's Local Ticket Offices

E. W. Albrecht, convention manager of United Air Lines, has been named manager of all of the firm's local ticket offices, a new post, it was revealed late in November.

Albrecht has been with United for five years.

Halpin Awarded C & S Trophy

Josephine Halpin radio news commentator of KMOX, St. Louis, Mo., has been awarded the Chicago & Southern Air Lines trophy for her part in publicizing activities of the air transport industry and the development of military and civilian aviation.



HOLIDAY TRIPS

To or Through Colorado and
the Southwest

When you travel in the West served by Continental, give yourself a gift of extra days—fly "America's Fastest." In Continental's new Super-Lodestars you travel in spacious comfort.



**CONTINENTAL
AIR LINES**

Pioneers Get Together



This was the scene when members of the trail-blazing TACA Lockheed transport, which negotiated the first direct cross-Gulf survey flight between Central America and the U. S., landed at New Orleans to be greeted by members of the crew of the "Transatlantic," American Export Airlines' Consolidated flying boat. The TACA crew was headed by Capt. Grant Spillman, left, and the "Transatlantic" crew by Capt. Charles F. Blair Jr., fifth from left.

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ALBERT H. STACKPOLE...Assoc. Editor
ROBERT H. WOOD...Ass't Editor-Daily
DAVID SHAW...Ass't Editor-Directory

ADVERTISING REPRESENTATIVE
W. F. Coleman
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Fortnightly Review

(Continued from page 1)

make very limited appropriations for Army and Navy aviation.

During peaceful years the airlines have been searching out and correcting the defects in aircraft and engine design. The airlines have been a great practical laboratory where day and night scheduled operations, in all seasons and all types of weather conditions, have brought to light for correction the many "bugs" to be expected in a continuing development and production of new and sensitive aviation machines.

Today, with a rapidly growing national sentiment against totalitarian aggression in the world, our taxpayers are ready to spend liberally for defense and defense today means greater production of airplanes, engines, propellers and aircraft accessories. About 100,000 men are now employed in aviation production. This number will be increased to 500,000 by next June, according to estimates, with a corresponding increase in factory space.

With all this dramatic expansion for aviation production speed-up, it is also good to read the recent statement by Rear Adm. John H. Towers, chief of the Navy's flying forces, wherein he said that it would be dangerous to neglect development of new aircraft while energies were concentrated on boosting the production of war planes for defense.

This attitude in high Army and Navy circles may well mean that the air forces will cooperate with the airlines and aircraft builders to bring forward on a reasonably limited production schedule such projects as the Douglas DC-4 which the scheduled operators hoped to put in service late in 1941. Another straw in the wind favorable to DC-4 type production is the growing interest of Army-Navy forces in fast long-range transportation maneuvers for mechanized troops.

Time to Catch Up

IN HIS new book, *Airports*, just published by Coward McCann Inc., John Walter Wood points a worthy moral. Foreign nations have sometimes been the first to reap the benefits of American inventions, he says. The airplane was born in the United States, but its possibilities were first recognized in Europe. On a large scale, aviation was developed in Europe as an instrument of war and later, in the twenties, as a means of commercial transportation. It took Col. Charles Lindbergh's flight across the Atlantic in 1927 to awaken America to the importance of air transportation. Thereafter, he points out, we were quick to catch up and surpass the European countries.

But meanwhile—and here is the important lesson—"the European countries had been developing their ground facilities, the foundation on which aviation necessarily rests for the operation

of both commercial and military aircraft, so that today there are few American airports which can compare with the best in Europe."

Mr. Wood is a strong advocate of rational airport planning. His comprehensive treatment of airports and the airport problem provides much food for thought. There is still time, he believes, to overcome the handicaps of the rapid, unplanned, initial development of aviation's ground services. This requires expert long-range planning. "If advantage is taken of the unrivaled opportunities . . . our airports, instead of acting as a brake on the industry, will become an asset for the steady progress of American aviation, to the benefit of the United States in peace and in war."

Unfortunate Statement

AT A time when every airline and every airplane and airplane engine manufacturer is cooperating to the utmost in the national defense program, we believe it unfortunate that Secretary of War Henry L. Stimson should have chosen on Nov. 26 to issue a few untimely and inferentially incorrect remarks about commercial vs. military production. We would like to believe Mr. Stimson's remarks were not what they seemed to be, especially when he singled out one manufacturer, Douglas Aircraft, for being "in arrears in its production for the Army." Mr. Stimson left the definite impression that commercial production was holding up military production.

In the first place, Douglas is behind on the military side for one reason only: the last-minute alterations in original specifications ordered by those in Mr. Stimson's own department. In the second place, military production cannot be speeded up five minutes by cutting off commercial production. Only two military advantages can accrue, and the airlines have quickly agreed to go along on these in pursuance of government plans. One is to release engines, and the other is to give the Air Corps more transports for its own use. The shortage of engines is simply due to the fact that the engine company was not asked to speed up production on these types—and had no large orders for them on hand. Cessation of production of transport planes will not speed up military production and everyone from Mr. Knudsen on down has recognized that fact. Mr. Stimson will find the industry wholeheartedly cooperative on every national defense measure without the necessity of statements which mislead the public into believing that commercial aviation is impeding defense preparations.

Col. Smith Leaves

THE newspapers say Col. W. Sumpter Smith has been recalled to active National Guard duty in Alabama and hence has resigned his post as chairman of the Interdepartmental Engineering Commission in charge of building Washington National Airport. We regret to see Col. Smith leave the project before its completion next spring. Without knowing the details of the resignation, we wonder why it was not possible for the War Department to grant Col. Smith a leave of absence until April and we wonder if the Civil Aeronautics Administration made any move to retain Col. Smith's services. Whatever the story beneath the surface, the fact remains that the \$13,000,000 model airport will be a monument to the perseverance and guidance of Col. Smith, for it was he who has been most responsible for its construction. The new airport, when completed, will be a sight to behold. It will be the nation's finest and for that reason it is perhaps fitting that it should be adjacent to the nation's capital. We hope Col. Smith receives the proper credit when the job is done.

CAA Reorganization?

Further reorganization of the Civil Aeronautics Administration, probably involving also the Civil Aeronautics Board, is fully expected in Washington after the first of the new year. Strong pressure for re-establishing CAA as an independent agency, with revival of an independent Air Safety Board, is certain to come in Congress, while there are indications that the Administration may take the initiative and bring about a change. Both the White House and Secretary of Commerce Jesse Jones are aware that all is not well within CAA. Most observers believe it is only a question of who acts first—the administration or Congress.

The term of Edward P. Warner as member of the five-man Board expires Dec. 31. There is no indication as yet whether he will be re-appointed or whether he will accept if the post is offered to him. The appointment of Harlee Branch as chairman of the Board also expires Dec. 31, although Branch has four more years as a member.

Capital Notes

COMMERCIAL AIRLINE NEWS dominated the military in the headlines for the first time in recent months, focusing the attention of official Washington on this phase of the aviation industry to a degree that made even more news than hit page one. This interest arose from the two sad and almost simultaneous developments—the Priorities Board ruling against airline expansion and the United Air Lines accident.

Many new problems for the airlines are thus created which must be met over the coming weeks. The restriction on equipment will require long and sometimes heated negotiation before the limited number of planes can be finally and fairly allotted to the different lines. Readjustments in schedules must be worked out to allow the maximum in efficient service as traffic continues to grow and facilities available remain about the same. The Civil Aeronautics Board must determine whether the new route question should be put on ice, or certificates granted for future use, as a protection for progressive operators.

Congress too will have its airline programs. Already several members have indicated their plans for next session. Investigation of recent accidents is urged in both houses. If these materialize, the old controversy over the status of CAA is bound to break out anew. While resolutions for accident investigation which have already been filed omit to mention CAA independence specifically, sponsors in some cases freely admit this problem will be revived. Senator McCarran has even stated his intention to introduce special legislation to restore CAA. But the administration can be expected to stand firm, or offer a program of its own. These and many other airline matters, such as mail rates and taxation, are waiting only for the call of the January session.

LABOR RELATIONS IN DEFENSE are concurrently causing more official headaches than the tough problem of speeding up production. The one, in fact, is superimposed upon the other. Congress is expected to let Defense Commissioner Sidney Hillman try out his theory of arbitration without legislation. But not without protest. And should another serious strike or other difficulty threaten to delay a defense industry, Congress may rush into some general overall legislation placing harsh restrictions on labor-induced interruptions.

A special aircraft industry-labor committee, not yet named as this issue goes to press, will be set up to handle labor relations in the aviation factories. When established, this committee is expected to adopt a policy against any strike until every facility of the Defense Commission for harmonious settlement by arbitration is exhausted. The Vultee experience went far toward arousing public resentment against unreasonable labor demands at this time. Some wage adjustments may be made but disruption of the flow of defense production will not be tolerated.

THE AERONAUTICAL CHAMBER OF COMMERCE starts off on another year following its recent annual meeting in New York. The Chamber deserves much credit for its service to manufacturers over the past 12 difficult months. With the industry's business now centered almost entirely in Washington, the work has been heavy on the Chamber's small staff, headed by Col. John H. Jouett. Recognition of its achievement is best illustrated by the extent to which the various government departments, as well as Chamber members, are turning to the organization for assistance and advice.

Approved at the annual board meeting were several changes designed to improve and facilitate the Chamber's activities, including a slight augmentation of the executive staff to relieve the burden on present personnel and a motion to reduce the New York office and centralize public relations direction in Washington. The clip-sheet, recently started by the publicity committee, will continue to be issued from the west coast.

PLANT EXPANSION PLANS are shaping up more rapidly as negotiations proceed between manufacturers and the government for facilities and factory construction financing. So far, the War Dept. has entered contracts providing financing for five aircraft and two engine companies to increase production capacity. Similar arrangements are expected for 10 or 15 other companies.

Meanwhile, final clearance by the Defense Commission is anticipated shortly for construction of four big plants where bomber parts to be made by the automobile industry will be assembled into completed aircraft by the aviation industry. All of these will be located in the middle interior of the country at such points as Omaha, Kansas City and Tulsa.

The automobile industry in the meantime is continuing to study aircraft designs and survey production facilities which may be adaptable to the manufacture of plane parts, with early reports indicating that the original 12,000 plane program may have to be revised downward since only about 40% of the plane parts can actually be made in Detroit according to preliminary estimates.

PETTY AVIATION RACKETS are mushrooming all over the country as a result of the impression that the public is a sucker for anything related to aviation, and especially to air defense. The smart guys will get you a job in an aircraft plant, a contract with the government, or a commission in the air services. Or maybe they just want you to join something for a price. However worthy or attractive the proposition, if you are not familiar with the background of its sponsors, it would be wise to consult a recognized aeronautical organization before you lend your name or give your money.



"We must have an overload!"

Pro, Con and Otherwise

To the Editor:

REFERRING to the editorial in the Nov. 1 issue of *AMERICAN AVIATION* entitled "City of Brotherly Love?" and to Burke Wilford's letter of reply in the Nov. 15 issue of *AMERICAN AVIATION*, I wish to say that I am prepared to speak my piece on the subject.

I have no fault to find with your editorial of Nov. 1—it is direct, it is to the point, it is truthful, it sets forth the facts, and is in line with the attitude, policy and reports which have been released from time to time by the Aero Club of Pennsylvania.

Burke Wilford's letter in no way reflects the attitude or policy of the Aero Club of Pennsylvania, and it expresses his personal opinion only, unauthorized by any act or suggestion of the Aero Club. It is inaccurate, it is unfortunate, it is unfair to Col. Dallin, it will do far more harm than good, and in a word, it is plain silly.

The entire conduct of the Philadelphia Municipal Airport has been wasteful of public funds. Its direction has been political and deplorable, and until the city divorces its operation from sordid politics, no manager—not even one as good as Col. Dallin—can do a job or render expected service.

There has been no intelligent planning in connection with this entire project. An inadequate temporary administration building in a temporary location was built at a cost far in excess of what it should have cost. Even today there is no plan for future development, no one to say where a hangar should go (if the city should want to build one) in relation to other hangars and future buildings, and if one of the airlines wanted to build its own hangar there is no one to tell them where to put it or what its architectural treatment should be in order to have it harmonize with other airport structures of the future.

This lack of planning also applies to the rail-marine terminal section and the whole job is characterized by cheap politics, and the net result appears to be a repetition of what has happened in other municipal airport undertakings. Newark, for example, was developed as a patch-work quilt, and mismanagement was its watchword.

I trust this makes clear the position of the Aero Club, as well as my personal position in the matter.

KERN DODGE
President

Aero Club of Pennsylvania

Folks Worth Meeting—

PRESENT manager of the Civil Aeronautics Administration's 6th region, Joseph S. Marriott is an aviation veteran of more than two decades experience dating back to the fall of 1917 when he learned his flying at Rockwell Field, San Diego, Cal. Commissioned First Lieutenant of the Aviation Section, Army Signal Corps, he served at Park Field, Millington, Tenn., from the end of 1917 to Sept. 5, 1919, after which he turned to civilian aviation and intermittent commercial flying, including exhibition and instruction.



Marriott

Marriott in 1928 joined the aeronautics branch of the Department of Commerce as inspector for New York State with headquarters at Buffalo. During the next five years he served as assistant chief and then as chief of inspection for the Bureau of Air Commerce.

Back close to where he started Marriott today is located at Santa Monica, Cal., from where he has been supervising the 6th region since July 1, 1938.

Among many aeronautical associations, Marriott is Lt. Col. and 2nd vice president of the Air Reserve Association of the U. S., director of the NAA Southern California chapter, member of the Los Angeles County Sheriff's Aero Squadron and of the aviation committee, LA Chamber of Commerce, and member of Quiet Birdmen.

Pan American Airport in Brazil Opens Area Closed to Trade for Centuries

PAA Engineer Builds Road Over 2,000-Foot Rock Barrier to Construct Airport and Unlocks Door to Vast Unknown Region

By W. W. P.

(Second of a series of articles on an air tour of South and Central America)

There are times when the building of an airport means far more than providing a landing field for airplanes. There are rare occasions when building an airport has results far beyond the creation of air travel and air commerce. Pan American Airways' new airport at Barreiras, far in the interior of Brazil, is one of those rare occasions when the airplane becomes a by-product to the opening of a vast region closed to trade and communication for centuries.

The building of the Barreiras airport is a saga in itself, one of those fascinating stories which should find a place in aviation history. It was my privilege to be a passenger on one of the first flights to stop at this new port far in the interior of a country greater in area than the United States.

Barreiras is a small town of about 3,000. It is midway on Pan American's new cut-off route between Belem and Rio, a distance of about 1500 miles. Douglas DC-3 transports stop there to refuel three times a week each way since the inauguration last summer of the 3-day air service by Boeing Stratoliner and Douglas DC-3 from Miami to Rio.

The word Barreiras means "barrier." The town fronts on a river and back of the river is a wall of rock 2,000 feet high extending for great distances north and south. The country to the east is populated all the way to the Atlantic but to the west is the barrier and Barreiras has been the last outpost for centuries. The people never found a way to get over that imposing and formidable rock cliff. They could climb up, to be sure, and they could get a burro up and down only with difficulty. But there were no roads. Barreiras was the western frontier.

Pan American selected Barreiras as a logical intermediate stop. It was not only half way between Belem and Rio but it was the only community in that area. Fritz Blottner, Pan American's able operations manager at Rio, surveyed the route back in 1931, traveling by horse and on foot and was impressed at that time with the location of this

small town at the foot of the rock barrier.

Early last summer when Pan Am decided to open up the cut-off, it sent a crew to Barreiras to build a field. It sounded like one of those impossible jobs—taking equipment far distances up rivers to this distant point. The crew arrived, however, and, started work on a field adjacent to the town—below the barrier. It wasn't long until this was discovered to be impracticable. There wasn't sufficient room for planes to take off.

Then came the decision to put a field on top of the barrier—and this idea did sound impossible to perform. But that's what was done and the story of the building of the airport is like a fairy tale of something that never could happen. With one truck and whatever equipment could be taken up the long river journey, a genius by the name of George Konshin, a Russian-born engineer, built the field in 29 days. The field itself was a much easier job than most fields, for the ground was solid and the terrain smooth. All that was required was to clear off the brush.

But the road up that rock barrier was a problem, and Konshin performed miracles. He even made his own dynamite. Just how, no one will probably ever know. The road up that steep sheer cliff is an engineering feat for all time with the small equipment he had at hand. Then came the gasoline—100,000 gallons by river. Then came material for the airport buildings, and a small hotel, plus all the other paraphernalia that goes into an airport. All of it had to come hundreds of miles by slow river boat.

When I was there the field stood out from the air like a star in the sky. The runways are long, wide and smooth. The buildings weren't completed but a temporary radio station had been erected and fuel was on hand. A crew of Brazilians in white coveralls were on hand still awed by the sight of the sky bird. George Konshin lived in a tent and had acquired a menagerie of animals that included an immense Armadillo.

The airport has been built, but the airport has a by-product of immense value to Brazil. For the road which George Konshin built up that rock

United Air Lines Assistants



John B. Walker



Harvey Hancock

Two assistants to W. A. Patterson, president of United Air Lines, were named recently, according to an announcement Dec. 8. The two are John B. Walker, regional traffic manager in New York, and Harvey Hancock of the line's publicity department.

barrier has conquered a precipice which for centuries has prevented the opening up for colonization of that immense region to the west. The airplane will not do much in itself for Barreiras, at least not for a long time, in the way of promoting trade and commerce. The airport, however, has brought two things to this small town in the interior. It has brought a new means of life for the people, and has given them an entry into this unknown region to the west.

Barreiras was infested with malaria. Not a single person in the town was immune. When Pan American first began hiring men for work, they had to take the whole town and send scouts for a hundred miles to round up all available adults. But malaria does not make strong men and they could work only three hours a day.

Then a miracle happened, at least it was a miracle to those people who had lived in the town by the river all their lives. When they moved to the top of the plateau, their health became better. For there is no malaria on top of the barrier. Today this town is moving on top, abandoning the malaria-infested village, and the men can work all day long. The people who had never seen an automobile found a new life in the world of the airplane and the radio.

I have told the story of Barreiras briefly. I have not told it too well. It's a story that would make a book. But I have tried to hit the high-spots of a 1940 aviation saga that proves that aviation is not through pioneering and that it has many by-products not directly concerned with airplanes.

The future of Barreiras is not clearly written but a change is already taking place. For Pan American it is only a way-station at present—one of only four stops on the fast three-day air trip to Rio. Some day there will be scores of planes a week instead of six, or perhaps Barreiras may be passed over and used only for emergency purposes. But certain it is that the road up that rock barrier will be the start of trade and commerce—first by mule back and perhaps some day by automobiles—with the vast unknown western region. The land is not suitable

for farming without irrigation, for it is arid. But there are mines—many mines—ready to be opened beyond the barrier.

To the genius of George Konshin, an unknown in aviation who has accomplished miracles for air transportation, this correspondent gives due honors. There ought to be an international award for him.

Walker, Hancock Appointed Ass'ts to W. A. Patterson

John B. Walker, regional traffic manager of United Air Lines in New York, and Harvey Hancock, of the company's publicity department, have been named assistants to W. A. Patterson, United president. It was announced Dec. 8. Walker, who has had more than 19 years' experience in transportation and traffic promotion, will have administrative duties, including public relations in the Atlantic Coast states with headquarters in New York. Associated with him as executive assistant will be E. Ainsley Highman, assigned to the New England states, with headquarters at Boston.

Hancock, one-time editor of the Salt Lake Tribune and Salt Lake bureau manager of International News Service, will have similar duties in UAL's western division with headquarters in San Francisco. Arthur G. Beggs, headquartered at Los Angeles, will be associated with Hancock as executive assistant.

With other members of Patterson's staff assigned to administrative public relations activities, they will coordinate under C. C. Thompson, vice-president in Chicago. D. Walter Swan, recently appointed to the staff, will have general duties over United's system and in Washington.

It also was announced that Hainer Hinshaw, vice-president, will handle administrative work on assessments and taxation in all states served by United.

Celestial Navigation Interest

A celestial navigation committee of domestic airline pilots, headed by Cecil Northrop, veteran of Pennsylvania-Central Airlines and holder of a master mariner's certificate, has been formed to foster interest in celestial navigation among airline pilots throughout the country. The group is expected to coordinate its activities with Pan American Airways whose trans-oceanic pilots are trained in the science of navigating by the stars instead of by the radio beam technique employed by domestic air carriers.

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AIR CARRIER RECORD

(C. A. B. Applications, Hearings, Dockets)

C & S Gets Houston-Memphis, EAL Evansville-Louisville

Chicago & Southern has been granted a route between Houston and Memphis, while Eastern was awarded an Evansville-Louisville extension. Complete story on page 14.

Pacific Alaska Asks Amendment

Pacific Alaska Airways Inc. has filed a petition with the CAB for amendment of its Fairbanks-Whitehorse certificate so as to include Tanana Crossing, Alaska, as an intermediate stop, and to authorize scheduled air service on an extension from Tanana Crossing to Anchorage. It is proposed to inaugurate service to Anchorage on a frequency of two stops weekly in winter and four in summer, using Lockheed Electras. The operation would be a 266-mile shuttle service between Anchorage and Tanana Crossing, at which point connection would be made with Seattle-Juneau-Whitehorse-Fairbanks planes.

CCA Discontinues Niagara Falls Line

Canadian Colonial Airways has discontinued its intrastate New York-Niagara Falls service. Complete story on page 24.

Boston-Maine Gets Bangor-Moncton

Boston-Maine Airways (recently re-named Northeast Airlines Inc.) has been granted an extension from Bangor, Me., to Moncton, N. B. Complete story on page 24.

UAL Intervenes in AA Case

United Air Lines has received CAB permission to intervene in the proceeding involving application of American Airlines for combining of AM4, Dallas-Los Angeles, and AM23, Albany-Ft. Worth, into a single route known as AM4.

Caribbean-Atlantic Amends

Caribbean-Atlantic Airlines Inc. has filed an amended application for transportation of persons-property-mail from San Juan to Vieques, Puerto Rico, in addition to routes already sought between San Juan and Ponce, between San Juan and Mayaguez via Aguadilla, between San Juan and Mayaguez via Ponce, and between San Juan and St. Croix, Virgin Islands via St. Thomas. The company states that mail pay of 50c per mile would be considered fair and reasonable for the routes. Hearings on the original application were held Oct. 14-15.

WAE to Seek New Routes

Western Air Express has indicated its intention of filing application for routes between (1) Los Angeles and San Francisco, and (2) Los Angeles-Sacramento via Bakerville, Visalia, Hanford, Tulare, Merced and Stockton. DC-3 equipment would be used.

Hearing for Southwest Routes Concludes

Hearing, which opened Nov. 14 before Examiner Thomas L. Wrenn on the following applications for convenience and necessity certificates, was concluded Dec. 4: Continental Air Lines between Hobbs, N. M., and San Antonio, Tex., via Midland, Big Spring and San Angelo, and between Pueblo, Colo., and Amarillo, Tex.; Braniff Airways between Denver, Colo., and Laredo, Tex., via Pueblo, Amarillo, Lubbock, Big Spring and San Antonio; between Lubbock and Houston, via Abilene and Austin, and between San Antonio and El Paso, via Uvalde, Del Rio and Marfa; Essair Inc. between Garden City, Kan., and Houston, Tex., via Amarillo, Lubbock, Abilene, Big Spring, San Angelo and Austin, or in alternative, the same route with Albuquerque as terminal point instead of Garden City; Transcontinental & Western Air between Amarillo and Houston, via Lubbock, Abilene and Austin, and between Abilene and Dallas, via Ft. Worth. American Airlines appeared as intervenor.

Examiner Approves PAA Merger Plan

The merger plan for simplification of Pan American Airways System's corporate structure, as recommended for approval by Examiner Frank A. Law Jr., Dec. 2, provides for the following: (1) Acquisition by Pan American Airways Inc. from its parent, Pan American Airways Corp., of control of these subsidiaries: Pan American Airways Co. (Del.); Pacific Alaska Airways Inc.; Uraba, Medellin & Central Airways Inc.; Compania Mexicana de Aviacion, S. A.; Compania Nacional Cubana de Aviacion, S. A.; Panair do Brasil, S. A., and Pan American Mfg. & Supply Corp.

(2) Merger of Pan American Airways Co. (Nev.), Pan American Airways Co. (Del.), and Pacific Alaska Airways Inc. into Pan American Airways Inc. and transfer of the certificates now held by the former companies to the latter.

Concerning the status of Panama Airways Inc., which was included in application for merger with Pan American Airways Inc., the examiner advised: "Inasmuch as Pan American Airways Inc. is now authorized to transport persons, property and mail to and from Balboa, C. Z., and Cristobal, C. Z., it would seem an unnecessary duplication to transfer the Panama Airways Inc. certificate covering operations to and from the same points. Therefore, it appears to be consistent with the public interest that the application for the transfer . . . and the merger of its property and rights be considered as a surrender or abandonment of the route by Panama Airways Inc. and the existing certificate authorizing that company to engage in air transportation with respect to persons and property to and from the above points should be canceled."

PAA Inc. Route Transfer to UMCA Authorized

CAB on Dec. 2 approved transfer of that portion of Pan American Airways Inc.'s FAM-8 certificate between Cristobal, C. Z., and Turbo, Colombia, to Uraba, Medellin & Central Airways Inc., amended the transferred segment to include intermediate point Balboa, C. Z., and extended it to Medellin, Colombia. Complete story on page 14.

Inland Denied Stop at Alliance, Neb.

Application of Inland Air Lines for certificate amendment to include Alliance, Neb., as intermediate stop on AM-35, Cheyenne, Wyo.-Huron, S. D., was denied by CAB on Dec. 3. Complete story on page 12.

Interventions Asked by 3 Lines

The following interventions are sought from the CAB: (1) United Air Lines has asked to intervene in Northwest Airlines' application for a mail-passenger-property route between Seattle and Vancouver; (2) Mid-Continent in application of Automatic Air Mail Inc., which proposes to furnish pick-up service to certain points served by MCA, and (3) Chicago & Southern in National Airlines' New Orleans-Dallas-Ft. Worth, and TWA's Indianapolis-Detroit, Detroit-Cincinnati and Detroit-Washington.

Pan Am Asks Tampa-Havana

Pan American Airways is seeking a Tampa-Havana extension. Complete story on page 24.

AA Bridgeport Stop Recommended

CAB Examiner Frank McIntyre has recommended that American Airlines be allowed to stop at Bridgeport, Conn., on its Boston-New York route. Complete story on page 24.

Railroads Oppose Airline Application

Three railroads have asked to intervene in Seaboard Airways' application for Boston-Miami and Boston-New Orleans. Complete story on page 13.

American Airlines Rate Hearing

Hearing was in progress as this issue went to press on the application of American Airlines for rate readjustments on AM4, Dallas-Los Angeles, and AM23, Albany-Ft. Worth, together with the CAB's investigation into AA's rates on all routes. The company is seeking 32c per mile on AM4-23, now receiving an average of 24c. Witnesses have included Charles Rheinstrom, AA's vice-president-sales, and Ralph Damon, vice-president-operations.

American Seeks Interventions

American Airlines has filed applications with the CAB seeking permission to intervene in the following proceedings: (1) Andrew J. Burke's application for a Corpus Christi-Laredo-Monterrey, Mexico, route; (2) TWA for San Diego-El Centro-Phoenix-Grand Canyon, Indianapolis-Ft. Wayne-Detroit, Detroit-Toledo-Dayton-Cincinnati, Detroit-Columbus-Wheeling-Washington, and Dayton-Clarkburg-Washington; (3) Braniff's Oklahoma City-Tulsa-Ft. Smith-Little Rock-Memphis; (4) E. W. Wiggins for permission to operate on routes within a radius of 500 miles from Boston Municipal Airport and Rhode Island State Airport; (5) Airline Feeder System's Westfield-Albany; (6) Western Air Express' San Diego-El Centro-Yuma-Phoenix and El Centro-Palm Springs-Los Angeles; (7) Mayflower Airlines' Boston-Springfield, and (8) Seaboard Airways' Boston-Miami and Boston-New Orleans.

WAE Asks Los Angeles-Denver

Western Air Express has filed application for a Los Angeles-Denver route. Complete story on page 19.

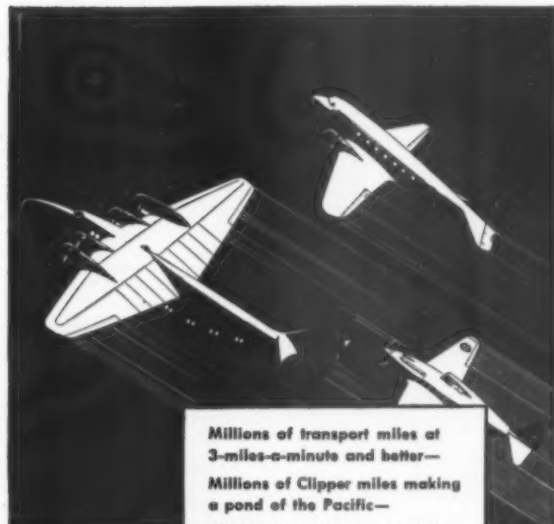
Hearing on PAA Singapore Application

Application of Pan American Airways Co. (Nev.) to amend its North Pacific certificate to include Singapore, the Straits Settlements, as a terminal for five years was given hearing Dec. 6 before Examiner Francis W. Brown. Intention of PAA is to dispatch flights on alternate weeks to Singapore and Hong Kong (now served weekly) using Boeing 314 equipment. Harold M. Bixby, PAA vice-president explained. Authorization for only five years is sought, he stated, because of unsettled Far Eastern conditions. A permanent certificate would require continuation of service for an indefinite future, he pointed out, while on the other hand five years are considered reasonable time for PAA to write off its investment, develop the new route and compensate for reduction of service to Hong Kong.

Estimates of additional revenues to be derived and additional expenses to be incurred in operating alternate fortnightly trips Manila-Singapore, 1,485 statute miles in place of Manila-Hong Kong, indicate that additional U. S. mail pay of \$20.531 would be required to break even for the first year of service. Bixby stated that facilities at Singapore are better than those at Hong Kong according to information given him by British Overseas Airways. Henry J. Friendly appeared as counsel for PAA, Edward Weld and John Sarber for CAB.

Calendar of Hearings

Jan. 8—All American Aviation Inc., amend certificate to include additional intermediate stops and reroute certain flights through Harrisburg, Pa.



Millions of transport miles at 3-miles-a-minute and better—
Millions of Clipper miles making a pond of the Pacific—
Millions of racing, power-diving Army and Navy miles—

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NY-Niagara Falls Intrastate Route Discontinued by CCA

Canadian Colonial Airways on Nov. 28 discontinued its intrastate passenger service between New York City and Niagara Falls.

The company started the route without a certificate of convenience and necessity from the Civil Aeronautics Board, stating that intrastate operations were not within the Board's jurisdiction. At the time of discontinuance, the question was pending in the New York courts.

Sigmund Janas, CCA president, according to company announcement, stated that since every effort is now being made by the Civil Aeronautics Board and other interested agencies of the federal government in coordinating and developing to the ultimate our resources in the interest of national defense, he feels that this is not the time for an established airline of this country to be engaged in a jurisdictional controversy with an agency so important as the Civil Aeronautics Board.

During September, the last complete month reported to the CAB, Canadian Colonial carried 229 revenue passengers over the route. Losses for the month were \$6,046, according to reports filed with the CAB.

Whether the CAB will drop its case in the New York courts as a result of the company's action is not known at this time. A CAB official said that the matter was "actively under discussion."

White Named to Direct TWA's Sales Research

Expansion of the sales department of TWA with the appointment of Robert B. "Bob" White as an assistant to vice-president to direct sales research was announced by V. P. Conroy, vice-president in charge of traffic and sales.



White

In his new work White will be headquartered in Kansas City and will be in charge of sales research for the entire TWA system. White, whose work during the last 10 years has been sales management and marketing research for Standard Oil Co. of N. J. in 17 of its subsidiary companies here and abroad, will fill a new position created by TWA, Conroy said. The new assistant was in the Army Air Service from 1917 to 1919, and taught aerobatics and aerial machine gunnery. In 1919 he became a lubrication engineer but continued his active flying career, using all types of private aircraft then available. In 1926 he became a member of the Quiet Birdmen.

Dr. Adams Resigns

Dr. Lytle S. Adams, inventor of the lock-up and delivery system, has resigned as a director of All American Aviation Inc.

Texas Leads

Texas now has 16 cities directly served by airlines, according to Braniff Airways, which states that Florida is runnerup with 13 and California next with 11. Illinois has the most airlines, with eight companies serving Chicago. New York has seven, Texas six.

Boston-Maine Gets Bangor-Moncton Link

Boston-Maine Airways' certificate on AM27, Boston-Montreal, Boston-Caribou, has been amended to include mail-passenger-property service between Bangor, Me., and Moncton, New Brunswick, Canada, the Civil Aeronautics Board announced Nov. 25.

The decision on Boston-Maine (which recently announced it was changing its name to Northeast Airlines Inc.) was reached by the Board on Oct. 28, and was signed by the President on Nov. 19.

"While at the present time the volume of prospective traffic on the proposed extension may not be large," the CAB said, "it must be recognized that recent growth in the demand for air transportation has been rapid. . . . The proposed service will provide air communication in a region lacking any such communication and in which the ground transportation facilities are limited."

"This fact and the value of the route as a feeder of long-haul passenger traffic to the applicant's system, coupled with the national defense interest in the proposed service, appear to justify the government expenditures involved."

"The record indicates that no additional radio facilities would be required for the proposed operation. Radio range stations and teletype weather reporting facilities are now operated by the government at Bangor and Millinocket. The Canadian government maintains radio range stations at Blissville and Moncton."

CAB Considers Changes in Airline Accounts System

Changes in the present uniform system of accounts and in the financial and operating statements filed monthly by the airlines with the Civil Aeronautics Board seem probable following investigation of current practices ordered by the Board Nov. 19.

Seeking to determine whether regulations promulgated Oct. 10, 1938, governing the airline financial reports should be amended, the Board declared that "all the accounts, records and memoranda kept by air carriers shall, upon demand, be made available for examination by the agents, auditors or other representatives of the Board." The forms used today are the same as those formerly filed with the Post Office Dept.

NAL Opens New Mobile Office

National Airlines recently opened a new downtown office in the Admiral Semmes Hotel, Mobile, Ala., with Don Stremmel, city traffic manager, in charge. Stremmel will be given leave of absence by National to announce the All-American Air Maneuvers at Miami in January.

Air Traffic Reaches New Peak in October

Holding true to form as the peak month for air travel, October brought the aggregate revenue passenger miles flown by domestic carriers in 1940 to 890,525,153, more than 61% greater than the 551,690,659 for the first 10 months of last year, according to figures released by the Air Transport Association.

The October record total of 115,474,262 revenue passenger miles compared with 70,221,520 for the same month of 1939, an increase of 64%, and with 108,533,749 for Sept. 1940, a gain of 6%.

October traffic marks reported by individual carriers follows:

American Airlines became the first airline to carry more than 100,000 revenue passengers in one month—104,158, compared with 93,376 in September and 59,128 in Oct. 1939. Revenue passenger miles totaled 35,396,139 against 22,336,971 a year ago.

Braniff Airways carried 12,966 revenue passengers, 3,920,015 passenger miles, increases of 96% and 87%, respectively, over 6,613 and 2,095,218 during Oct. 1939.

Chicago & Southern Air Lines served 137% more passengers than in October of last year, operating 2,117,357 revenue passenger miles against 936,082. Ten months' revenue passenger traffic was up 90% over 1939.

Eastern Air Lines flew nearly 37,000 revenue passengers, a total of 14,794,424 passenger miles in October, increase of more than 63% over a year ago.

National Airlines, noting an early start of the Florida winter tourist season, reported 423,527 revenue passenger miles, a gain of 22% over the preceding month and of 120% over Oct. 1939.

Northwest Airlines for the 25th consecutive month showed a passenger revenue increase over corresponding month of the previous year. The airline carried 12,311 revenue passengers, some 5,396,290 passenger miles, a gain of 65% in passengers carried and 51% in revenue passenger miles compared with Oct. 1939.

Pennsylvania-Central Airlines carried 24,616 revenue passengers and flew 4,285,145 revenue passenger miles for increases of 103% and 106%, respectively, over 12,093 and 2,073,544 a year ago. October marked the 28th consecutive month that PCA's traffic has shown gain over comparable month of preceding year.

United Air Lines' 25,201,200 revenue passenger miles were almost 60% ahead of the 15,809,840 of a year ago. Contrary to the trend in previous years, traffic on the coast-to-coast and Pacific coast routes showed increases in October over the September volume.

Western Air Express flew 1,695,111 revenue passenger miles for a 45% gain over 923,551 in Oct. 1939. October was the 24th consecutive month to record increase over similar period of the previous year.

TWA's Calendars Feature Illustrations, Catch Line

Outstanding features of TWA's 1941 calendars are the four illustrations, by Gene Walther and the shaded effect of the figures which ties in with the catch line explaining that "TWA puts double days on your calendar."

Especially commissioned by TWA to illustrate the 1941 calendar, Walther, internationally acclaimed exponent of modern art, gives some highly colorful impressions of "the very real pleasure he has found flying TWA—the nation's most scenic air route."

Pan Am Asks Tampa-Havana

Pan American Airways has filed application with the Civil Aeronautics Board for a 330-mile extension of its Miami-Havana-Merida route to furnish service from Tampa to Havana.

The company stated that granting of the application would enable it to offer one-day through Tampa-Merida service three times weekly.

"In addition to service to Havana, Tampa would thus for the first time have direct and expeditious service to Mexico and Central America, with which that city has many important economic connections," the company said. "In addition to thrice-weekly service along the whole route, it is proposed to operate additional local schedules on the Tampa-Havana sector so as to provide daily frequency thereon."

Pan American pointed out that it operated Tampa-Havana service from Dec. 4, 1933, to Apr. 10, 1935, using Consolidated Commodore flying boats. Douglas DC-3's would be used on the new extension.

"The applicant believes that it is in a position better to serve the public convenience and necessity in the operation of this extension than any other possible operator," the application said.

During the first year, the company expects a net loss of \$46,551 from Tampa-Havana, after depreciation but before U. S. mail pay, interest on investment and federal taxes on the latter.

Bridgeport Stop for AA Recommended

American Airlines should be permitted to serve Bridgeport, Conn., as an intermediate point on AM18, New York-Boston, according to a proposed report issued Dec. 7 by CAB Examiner Frank McIntyre.

Air mail originating at Bridgeport is now transported to New York by surface transportation, the report said, adding that Bridgeport's airport, now under construction, is expected to be completed by June 1941.

"As a general proposition there would appear to be little justification for the inauguration of air service to a point located approximately 16 miles from a city already designated as an intermediate point (New Haven)," the examiner said, "particularly where ground transportation facilities between such points are adequate. However, in the instant case it must be recognized that petitioner operates a large number of schedules daily over the route which is sought to be amended . . . and that no material reduction in the number of such schedules appears likely."

"It is clear, therefore, that petitioner would be able to provide service to Bridgeport and New Haven on different schedules, thus eliminating the disadvantages which would result if both points were to be observed on a single flight. Petitioner's proposal will enable it to provide direct air transportation service to an important industrial community without an undue burden on existing schedules, and without excessive cost either to the carrier or to the government."

UAL Names Vermont Agent

The Vermont Transit Co. with headquarters at Burlington has been appointed general agent for United Air Lines in the state of Vermont. With some 60 offices throughout the state, the Vermont Transit Co. will handle ticket sales and provide travel information to the public.

SUMMARY OF PAN AMERICAN AIRWAYS OPERATIONS FOR SEPTEMBER

(Compiled and Mileage Costs Computed from CAB Reports a)

	Rev. Pass.	Rev. Pass. Miles	Seat Miles Operated	Pass. Load Factor	Ton-Miles U. S. Mail	Pass. Revenue	U. S. Mail Revenue	Foreign Mail Revenue	Operating Revenue	Operating Expense	Cost per h Mile Flt.	Net Revenue From Operations
Alaska Airways Inc., Juneau-Fairbanks	346	160,153	.....	.....	1,791	\$18,207	\$ 4,466	\$ 00	\$26,124	\$48,821	\$1.07	\$22,466 (red)
Alaska Airways Inc., Seattle-Juneau	178	155,307	.....	.....	2,713	15,201	38,494	7.50	15,201	38,494	2.50	23,382 (red)
Am. Airways Co., New York-Bermuda	221	189,728	.....	.....	80	7,008	30,800	1,114	22,177	42,361	3.34	20,104 (red)
Am. Airways Co., San Francisco-San Diego	281	985,637	1,223,928	84.0%	39,999	305,362	204,123	204,123	810,179	484,091	5.95	55,487
Am. Airways Co., San Francisco-Hong Kong	260	318,819	399,829	86.9%	7,398	26,991	27,748	36,361	87,418	132,064	3.62	74,648 (red)
Am. Airways Inc., Eastern Division	5,241	3,088,848	3,841,843	82.8%	.....	280,988	403,771	3,794	402,120	687,436	4.12	29,101
Am. Airways Inc., Western Division	3,268	998,338	1,241,543	80.4%	.....	183,253	183,253	18,083	374,988	286,437	3.34	88,581
Am. Airways Inc., Eastern Division	1,943	1,378,449	2,108,581	60.5%	9,800	108,232	189,421	16,768	333,606	231,137	2.84	52,469
Alaska Airways Inc.	.....	.....	.....	.....	.....	.....	723	00	723	723	2.07	00
Alaska Airways Inc.	.....	.....	.....	.....	.....	.....	7,337	00	7,337	11,412	1.65	228
Alaska Airways Inc.	280	71,088	204,478	34.7%	.....	.....	.....	.....	11,440	11,412	1.65	00

a All monthly reports to the CAB are subject to revision and year-end adjustment.
b Total operating expenses divided by total plane miles; computed to nearest half-cent.

c Not reported by company.
d Includes current month \$336,200 and adjustments for prior months \$33,762 (red).

American Shuffles Personnel as Albany Service Is Resumed



Emery

With resumption of air service to Albany, N. Y., Dec. 1, American Airlines has transferred Alva Emery, sales representative in Buffalo since 1937, to the position of city sales manager for Albany, according to announcement of Charles A. Rhinstrom, American vice-president and general sales manager. Emery has been with American since 1932 and has traveled extensively throughout the U. S. during his service with the company.

Emery is replaced at Buffalo by A. S. Dunning from the airline's New York offices.

Transferred from Burbank, Cal., to the job of station manager at Albany is Milton K. Davis, 10-year man with American previously located at Dallas, Ft. Worth and San Antonio, Tex. A Texan by birth, Davis attended Okmulgee Junior College at Okmulgee, Okla.



Davis

Also stationed at Albany are Robert S. Lyons and Joseph A. Fields, Jr., as general agents. Both are from American's Buffalo office. Ernest J. Milano of New York City has been designated passenger agent at Albany, and Joseph F. Dury, who has been radio operator at the Albany airport for American, will continue in that position.

Service to Albany was suspended by American Jan. 31, 1939, because of airport conditions. Now operating through Albany Municipal Airport, the airline offers a daily round trip between Albany and New York City. In addition to service on trips between Boston, Mass., and Syracuse, N. Y.

Aero Bookshelf

AIRPORTS, by John Walter Wood; profusely illustrated with diagrams and photos; Coward McCann Inc., 2 W. 45th St., New York, N. Y.; 364 pp.; \$12.50.

The author of this work is well known to many of those persons concerned with airports. His book has long been in preparation and contains the most complete picture of airports of the world ever compiled. By means of 444 photographs and 64 diagrams and plans, plus detailed analysis and comparison, Mr. Wood has made a distinct contribution to aviation.

Little space is taken up with discussion; the author's words are brief and to the point. But within the two covers is a great amount of practical information on air transportation, runways, airport traffic, instrument landings and the like. A notable contribution is his plans for a model airport and how it can be built economically by sections.

Here is a book for architects, engineers, airport managers, federal agencies and manufacturers. Every municipality should have it. Most of all, perhaps, are the convincing arguments, supplemented with realistic diagrams, that the U. S. needs rational airport planning.

Mr. Wood is a member of the firm of Poor and Wood in New York City who, as airport consultants, are the designers of two technical schools for the Army Air Corps.

W. W. P.

NAL Opens New Quarters

Effective Dec. 1, the address for all departments of National Airlines Inc. became Municipal Airport, Jacksonville, Fla., the company having occupied new quarters at the airport at that time.

Lear's New Development Announced As Basic Instrument for Navigation

The Lear gyromatic navigator, for which William P. Lear received the Frank M. Hawks Memorial Award (see page 6), combines the separate indications of an automatic radio direction finder and a directional gyro, integrates these indications with reference to the aircraft's heading, and automatically gives the pilot a continuous running solution of various navigational problems—from straight-line navigation to instrument landing.

This announcement from the manufacturers, Lear Avia Inc., of which William P. Lear is president, points out that the two indications of the gyromatic navigator combine to produce a new basic instrument for aircraft navigation.

With the new Lear instrument, the pilot sees at a glance his position with respect to his desired track. The gyromatic navigator "literally plots the problem and gives the course continuously."

Following are some of the complex navigational problems which it is claimed are easily solved with the new instrument's aid:

Straight-line navigation along any desired track, either toward or away from a radio transmitting station;

Straight-line navigation under unknown and varying drift conditions, without visual references outside the airplane;

Rapid position fix and straight-line navigation to any destination not provided with a radio trans-



mitting station;
Rapid instrument approach and landing using a single non-directional marker located on the prolongation of the desired runway;

All indications of an automatic station-seeking radio direction finder;

All indications of a directional gyro.

The gyromatic navigator concentrates the entire navigational problem on a single dial; gives graphically its running solution; guides the pilot along his chosen track and

Spartan Instructor

Robert L. Mann, an engineering graduate from the University of Alabama, and recently associated with Douglas Aircraft Co. and Northrop Aircraft Inc., has been appointed chief engineering instructor at Spartan School of Aeronautics, Tulsa, Okla., according to an announcement by Capt. Maxwell W. Balfour, director of the school. Mann will direct the instruction of students enrolled in aeronautical engineering and airline maintenance engineering courses offered by Spartan school.



Mann

brings him to his destination, and if need be, to a safe landing; reduces pilot fatigue; and achieves greater safety in the air through greater precision of navigation.

School Leases Quarters

American Aircraft Institute, with a student body of 100, has leased a building at 936-46 W. Chicago Ave. in Chicago to establish a branch "for training young men in aircraft vocations." Arthur H. Zamotny, former president of California School of Aeronautics, is president; treasurer and secretary is H. Roy Berry; Lt. Floyd K. Smith is vice president in charge of student training, and chief instructor is Warner K. Schoenert, formerly with Lockheed Aircraft.

UFSA Opens Vail Field

Vail Field, 400-acre airport at Los Angeles, Cal., has been officially opened under the management of United Flying Schools of America Inc.

Elapsed Time Clock Weights Seven Ounces



Combining elapsed time and second setting features with the standard Kollsman Eight-Day Aviation Clock, this new Elapsed Time Aviation Clock, introduced by Kollsman Instrument Division of Square D Co., weighs but seven ounces.

An overall dial and large hands indicate time in the usual manner. A large sweep-second hand, making one revolution in one minute, is set in motion by pressing a small button at the bottom of the clock. A small dial in the upper right section of the overall dial serves as the totalizer dial for the sweep-second hand, accumulating the time of this hand up to 60 minutes. The sweep-second hand and totalizer are stopped by pressing a button. When pressed again, both the second and totalizer hands return to zero.

Except for bearing pivots and a few small parts, non-ferrous metal is used in the clock's construction. As the instrument's accuracy is not affected by magnetism, it may be mounted adjacent to a compass without affecting the action of the compass.

Although designated as an eight-day clock, it is not necessary to rewind punctually on the eighth day. It will actually run 10 days on one winding, thus allowing a two-day margin.

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BY JOHN WALTER WOOD

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From a detailed analysis of 22 important airports in the Americas and 26 in Europe (with scale plans and photographs) Mr. Wood proceeds to a presentation of new and extremely valuable ideas for every phase of airport planning and operation, present and future. Unquestionably one of the most important aeronautical books ever published. Tremendous value for \$12.50

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Day and night, clear and cloudy, the Western Electric Absolute Altimeter gives pilots continuous, accurate readings on terrain clearance—the vital distance between plane and ground. Western Electric Co., Kearny, N. J.

Western Electric
AIRCRAFT RADIO SYSTEMS

Monroe and Hinchliffe Promoted in NA Move



Monroe

Hinchliffe

Robert Monroe, who has been purchasing agent at North American Aviation's Inglewood factory for the last five years, will be purchasing agent for NA's Texas factory as well as retaining his present position in Inglewood, it was announced in mid-November.

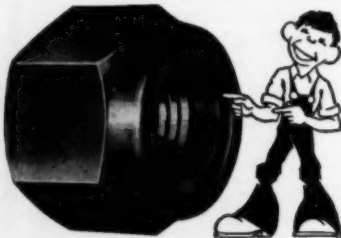
J. W. Hinchliffe, formerly a buyer in the purchasing department, has been named assistant purchasing agent of the Texas factory. He has assumed his new duties in the firm's temporary offices in Dallas.

It was announced that the Texas purchasing office will purchase all material which can be obtained in the local area, but that administration of purchases will be retained by the Inglewood office under the direction of Monroe.

Growth of the company since the Inglewood plant was occupied in 1936 is illustrated by the volume of purchases. In 1936, material valued at \$895,000 was purchased. In 1939, the total was \$13,500,000, and it is estimated that more than \$35,000,000 worth of material will be purchased during 1940.

Bell Appoints Hapke

Albert T. Hapke, formerly a member of the Chicago staff of Collier's, has joined Bell Aircraft Corp. at Buffalo, N. Y., as advertising manager.



THAT FIBER COLLAR
solved the aircraft
fastening problem...

In every Elastic Stop fastening, it is the collar that keeps the nut tight... by automatically eliminating thread play when the nut is applied, and by continuing to hold the load-carrying thread faces in a constant pressure-contact.

This collar has properties, not possessed by metals, which make it ideally suited to its job. Made of a bone-like chemically-hardened cotton cellulose fiber... one of the toughest and most durable substances known... it is not adversely affected by moisture, gasoline, oil, grease, or ordinary solvents. Most important, it is highly resilient and readily absorbs vibration and shock without fatigue or change in its structure.

• Write for Catalog

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Elastic Stop NUTS
SELF-LOCKING

Schwartz is Lockheed's Public Relations Head

Leonard K. Schwartz, manager of the aviation department of the Los Angeles County Chamber of Commerce, on Nov. 29 was appointed public relations director of Lockheed Aircraft Corp., according to an announcement made by Robert E. Gross, president. Schwartz took up his new duties on Dec. 1.

A native of San Francisco, Schwartz was graduated from Stanford University in 1927. He was engaged in business in San Francisco, Seattle and Tacoma over a period of years and was then called to the LA Chamber to head the aviation committee.

His monthly publications devoted to expansion of the aviation industry in Los Angeles County have coordinated the efforts and publicized the progress of flying and aircraft production on the west coast.

Publicity director of Lockheed is Jimmy Griffin, and advertising director is V. A. Kemmerer.

Southern Builds Dallas Plant After Transfer

Having been located in Houston, Tex., for a year and one-half, Southern Aircraft Corp., through its president, Willis C. Brown, announced recently it is moving to a 183-acre site at Garland (Dallas County), Tex., and that construction on the first unit of the new factory was underway.

The factory site covers 23 acres with an additional 160 acres lying adjacent for construction of a company airport. General contractor for construction of the plant is Henger Construction Co., Dallas.

With new facilities, Southern will turn out the BM-10 primary trainer which was pictured in *AMERICAN AVIATION*, July 15.

J. R. McLean will be executive assistant to Brown, and R. B. Quick of United States Aviation Underwriters has joined the company as executive engineer. Other officials are Orin Moe, vice-president and chief engineer; Carl Biehl, treasurer, and Frances H. Brown, secretary.

Engineers of 22 Companies Form Standards Committee

An aircraft standards committee was organized in St. Louis recently by engineers of 22 major aircraft companies. Members of the committee, who have been functioning in separate east and west coast groups for 18 months, met to correlate their efforts to speed defense production by promoting standardization of manufacturing processes and parts designs, exclusive of engines, with a view to making many parts interchangeable but with no intention of making final products of the factories identical.

William Smith, standards engineer for Bell Aircraft Corp., was elected national chairman; J. T. Thompson, Glenn L. Martin Co., and J. F. Cox, Vega Airplane Co., will serve as chairmen of eastern and western divisions, respectively.

Manufacturers not represented on the committee will be invited to join, it was stated.

Rice Resigns

Arthur H. Rice has resigned as publicity director for Williams Aircraft Corp., Toledo, O., the company organized by Roger Q. Williams to manufacture a new lightplane of Williams' design.

A member of the Aviation Writers Association and former assistant to the president of the National Aeronautic Association, Rice has not yet announced his future plans.

Testing 175-HP. Kinner

A new aircraft engine of 175 hp., now completely developed and undergoing type tests, is expected to go into production soon by Kinner Motors Inc., 635 W. Colorado, Glendale, Cal. Future plans for the construction of a 75,000 sq. ft. factory addition were thought to tie in with production of the new engine.

Executive V. P.



William F. Wise

President of Republic Aircraft Products Corp., Detroit, a division of Aviation Corp., recently was appointed executive vice-president of Aviation Manufacturing Corp., as announced in *AMERICAN AVIATION*, Dec. 1.

Stinson Set to Produce New Trainer at Wayne

Production of a new two-seater high-wing monoplane trainer of late design was scheduled for early production in Wayne, Mich., at the Stinson Aircraft Division of Vultee Aircraft Inc. The new craft would be placed in production along with the Stinson 105 model.

The Stinson division resumed operation at Wayne with 150 employees, having moved from Nashville, Tenn., where in March it transferred its headquarters from the original location at Wayne.

Rudolph Funk, factory manager, announced plans for an addition of about 10,000 sq. ft. and a production schedule for the 105 and the new trainer which eventually will reach 10 units daily.

Strompl Heads Douglas' 'Bomb-Proof' Division

George A. Strompl will head Douglas Aircraft Co.'s newly created Long Beach (Cal.) Division which is now building a 1,422,350-sq. ft. plant planned to incorporate defensive arrangements and construction ideas never before assembled in an airplane factory on this continent.

In addition to being completely invisible at night, all structures of the Long Beach unit will be air conditioned, artificially lighted, carry duplicated utility services and storage underground and have provisions below ground for bomb-proof shelters for all personnel.

Additional safety in event of air attacks will be provided by decentralization of the larger units and housing them in 11 separate buildings.

Being erected at a cost of more than \$11,000,000, the new plant will be ready for production in the summer of 1941, it is predicted.

The Long Beach plant, with Douglas company's Santa Monica and El Segundo plants, will provide a total of 3,285,000 sq. ft. of working space.

Jack-Heintz Organization Operating in Cleveland

With a backlog of orders for aircraft starter assemblies approximating \$3,000,000, Jack-Heintz Ltd. recently closed its research plant at Palo Alto, Cal., to move to Cleveland, according to William S. Jack, president.

With executive and engineering offices at 809 Hanna Bldg. in Cleveland, the firm has acquired a 43,000 sq. ft. plant in Bedford, near Cleveland, for future operations.

Executive vice-president of the company is Ralph M. Heintz, veteran California radio manufacturer.

Navy Construction Contracts Awarded to Three Corporations

Contracts with United Aircraft Corp., Edo Aircraft Corp. and Foote Brothers Gear and Machine Corp. were entered into early in December by the Navy Dept. for the acquisition of additional plant space. Total of the three contracts is \$19,485,740, providing for expansion amounting to 912,840 sq. ft.

The contract with United Aircraft Corp., estimated at \$18,160,746, will be divided among the corporation's three divisions as follows:

(1) Pratt & Whitney Aircraft Division for the acquisition, construction and installation at East Hartford, Conn., of additional plant facilities and equipment at a total cost estimated at \$14,799,000.

(2) Hamilton Standard Propeller Division for acquisition, construction and installation of additional plant facilities and equipment at East Hartford, plant amounting to approximately 48,640 sq. ft., and for additional machinery at division's rented plant at Pawcatuck, Conn., at a total estimated cost of \$1,761,746.

(3) Vought-Sikorsky Aircraft Division for acquisition, construction and installation of additional plant facilities and equipment at Stratford, Conn., amounting to approximately 258,000 sq. ft., the total cost being estimated at \$1,600,000.

For the manufacture of gears for airplane engines, Foote Brothers Gear and Machine Corp., Chicago, received a Navy contract amounting to \$1,020,000 which will cover the cost of acquisition of additional land and buildings. Floor space of the company will be expanded by 125,000 sq. ft.

Edo Aircraft's contract calls for acquisition and construction of additional plant facilities and equipment at College Point, N. Y., the maximum amount to be spent being \$365,000. The expansion will add 47,000 sq. ft. to existing facilities, of which 40,000 will be fully equipped for production of airplane floats.

United Aircraft's Vought-Sikorsky division earlier announced plans for construction of a 68 x 86 ft. engineering building at an estimated cost of \$28,000, and a smaller addition to the administration building at Stratford at a cost of \$21,438. This was said to be the ninth addition to the V-S plant in the last year.

Adel Moves to New Factory at Burbank

Adel Precision Products Corp. has moved to a new factory located at 18771 Vanowen Blvd. on a 10-acre tract with 1,500-ft. railroad frontage adjacent to Burbank (Cal.) Union Air Terminal, it was reported on Nov. 30. New structure was said to be the first completely air conditioned aircraft equipment plant in southern California.

Representing an investment in plant and equipment in excess of \$250,000, the new plant marks the second Adel expansion this year and the company's fourth move in three years, according to H. Ray Ellinwood, president.

Spier Opens Plant

Spier Aircraft Corp., with executive offices at 26 Court St., Brooklyn, N. Y., has opened a plant at 200 Central Ave., Jersey City, N. J., occupying the complete building. Company expects to have its first ship off the line within 30 days. A training division has been established, according to I. Martin Spier, vice-president, and company also has installed equipment for the fabrication of machine parts.

Skelly, Nisaly Shifted

J. J. "Jack" Skelly, formerly of the accounting department of Republic Aviation Corp., and William Nisaly, former secretary to W. Wallace Kellett, Republic president, are now assigned to the personnel department to assist Personnel Director Philip R. Shays in handling the company's new personnel program.

Skelly joined Republic in 1936, and Nisaly was first employed by the company in 1939.

Carl Wootten Leaves Aeronautical Corp.

Carl Wootten, vice-president in charge of sales for Aeronautical Corporation of America at Middletown, O., has resigned effective Dec. 31.

Wootten joined the company two and a half years ago and has been a leading exponent of lightplane sales and development of private flying. He was responsible for a large increase in Aeronca lightplane sales and developed an extensive network of distributors over the country.

Pending announcement of his new connection, Wootten will vacation in Florida for a month after Dec. 20.

Carr Placed in Charge Of Lockheed's British Contracts; Orr Remains

Appointment of Gardner W. Carr, former vice-president and general manager of Glenn L. Martin Co., as British contract coordinator in charge of the entire administration of British contracts, was announced late in November by Carl B. Squier, vice-president and general sales manager of Lockheed Aircraft Corp.

Carr for the last several months has been in charge of production control at Lockheed.

W. D. Orr will continue in his present capacity as sales account man on the British contracts and will work directly under Carr, Squier said.

Ellis Made Sales Manager of Hamilton Standard Div.; Russell Assists Stewart

Appointment of Harlan M. "Hoot" Ellis as sales manager of Hamilton Standard Propellers Division of United Aircraft Corp. was announced recently by Sidney A. Stewart, general manager of the division who was sales manager before being elevated to his present position.



Ellis

Robert W. Russell, formerly assistant sales manager, had been assigned new duties and would report directly to the general manager as his special assistant.

Ellis is a graduate of Yale University and of Boeing School of Aeronautics where he received a transport pilot's license in 1934. He has been identified with Hamilton Standard for the last five years, serving first in the service department, then as assistant sales manager, and more recently as sales representative on the west coast.

Russell was associated with Cheney Brothers and with Pratt & Whitney before joining Hamilton Standard's sales and service department in 1933. Since 1937 he has been assistant sales manager.



Russell

New Boeing Executive



E. R. Perry

Newly appointed executive assistant to the president of Boeing Aircraft Co. has served in managerial and executive capacities with several leading manufacturing and sales organizations. Announcement of the appointment was made in AMERICAN AVIATION, Nov. 15.

Intercontinent Corp. Gains Harlow Tie-up

Intercontinent Corp., New York, N. Y., has announced acquisition of export manufacturing and sales rights for Harlow PCSA trainers, the purchase of three demonstrators and financial participation in engineering development of Harlow trainer models.

The firm declares that negotiations have been in progress to obtain substantial financial and stock interest in Harlow Aircraft Co., Alhambra, Cal.

William D. Pawley, president of Intercontinent Corp. of Delaware, is a principal in Intercontinent Aircraft Corp., an independent company recently formed under Florida laws. The aircraft firm is erecting and equipping a factory in Miami, Fla., which is expected to be completed and in operation within two months with an initial plant investment of approximately \$750,000.

No decision has been announced on models or products to be manufactured in the factory, although a large part of the facilities probably will be devoted to subcontracting for existing military orders.

Directors of the Florida firm include Bruce G. Leighton, company president, P. R. Scott and Pawley.

Culver Aircraft Tests Initial Wichita-Made Plane Following Move

Culver Aircraft Corp. flew its first Wichita-made plane early in December, according to O. A. Garnett, manager of the industrial development department of the Wichita Chamber of Commerce.

The firm recently transferred its entire operations from Columbus, O., to a building in Wichita acquired by purchase from Bridgeport Machine Co., manufacturers of oil field equipment.

Navy Reported to Have Over 2,000 Consair, Martin Boats Ordered

More than 2,000 flying boats estimated to be on order by the U. S. Navy are being built in the plants of Glenn L. Martin Co. in Baltimore and Consolidated Aircraft Corp., San Diego, Cal. It was reported in Washington following recent awards for Consolidated aircraft and Pratt & Whitney engines.

Contract for patrol bombers was awarded to Martin on Nov. 1, and it is believed to call for about 1,100 flying boats of the PBM type at a total cost of \$106,125,396. Consolidated will supply about 1,000 PBV's at a cost of \$93,842,500, it was reported following the award of two contracts, one on Nov. 9 amounting to \$75,313,000, and the other on Nov. 15 totaling \$18,529,500.

The Navy on Nov. 12 awarded a \$57,856,179 contract for engines to Pratt & Whitney Aircraft Division of United Aircraft Corp., East Hartford, Conn. No details as to type, number or delivery dates were disclosed, although it was believed that the engines included in this and other contracts would be used in the Consair and Martin flying boats.

Altman Joins Research Dept. of Aviation Mfg. With Kos and Gerlach

Peter Altman, director of the University of Detroit's aeronautics department and a pioneer in the field of aeronautical engineering, has resigned to become associated with Aviation Manufacturing Corp.'s research and development division.



Altman

Altman, whose appointment is effective immediately, was the first student to receive the degree of Bachelor of Aeronautical Engineering from the University of Detroit in 1925. His headquarters will be in Detroit.

Woodhead also announced that Thomas Gerlach, executive engineer of Aviation Manufacturing Corp., Williamsport, Pa., would be transferred to Detroit where he will be associated with Altman in the development of the company's research and development program.

Alfred Kos, chief sales engineer of Truscon Steel Co., has also been appointed to the research and development division, and will be associated with Altman and Gerlach. Kos has been with the steel company for the last 13 years.

Altman, who has been with the university since 1925 when he was graduated, was first employed as an instructor in the department of experimental engineering. In 1926, he was placed in charge of the university's aeronautics department and under his direction this department grew from an enrollment of 15 students to the largest in the university's college of engineering.

He is a member of the Society of Automotive Engineers and an associate fellow of the Institute of the Aeronautical Sciences.

Plant Expansion

Four Companies Expand Facilities

Leading news of plant expansion activities for the fortnight came from Fairchild Aircraft Division of Fairchild Engine & Airplane Corp. at Hagerstown, Md., where ground was broken late in November for a new factory unit to cost \$1,000,000. The plant will be built on a 60-acre plot adjacent to Hagerstown Airport.

Other expansion news was announced by Irving Air Chute Co., Buffalo, N. Y.; Lear Avia Inc., Dayton, O., and Morrow Aircraft Co., Redlands, Cal.

About 1,200 men are now employed by Fairchild and when the new unit is under operation, 1,000 additional will be at work. Unit will consist of 125,000 sq. ft. Also approved is a 4,000 ft. runway in front of the new plant.

Fairchild's backlog stands at approximately \$9,690,760, consisting largely of orders for primary training planes.

Irving Air Chute's plant at Buffalo will be increased by about 25% as a result of enlarged demands for parachutes from the U. S. and British governments, it was reported. Production schedule for the plant will be 150 parachutes weekly compared to 50 as of Dec. 1.

The parachute company's backlog is approximately \$3,000,000, equally divided between the U. S. and Canadian plants, executives said.

William P. Lear, president of Lear Avia, revealed recently that his company soon will establish a plant in downtown Dayton to supplement production at the main plant at Dayton Municipal Airport. Company recently established downtown headquarters at 50 N. Jefferson St.

Morrow Aircraft announced late in November that it is ready to begin construction on an airplane and airplane parts plant at a site chosen near Redlands for a county airport.

The company plans to build a two-seater trainer designed by Vance Breese, it was said.

Morrow will erect a steel building having a floor space of about 50,000 sq. ft. and costing \$39,000. Plant and equipment will represent an investment of \$75,000.

Burdette S. Wright Names 8-Man Staff

Burdette S. Wright, vice-president of Curtiss-Wright Corp. and recently appointed general manager of all aircraft manufacturing activity of the corporation, recently announced appointment of an eight-man staff. He said the staff is "set up for the purpose of coordinating and unifying the activities and operations in each particular phase of work for all branches."

Those in newly-created posts include:

Don R. Berlin, former chief engineer of Curtiss Aeroplane Division at Buffalo, director of military engineering; George A. Page Jr., chief engineer of the St. Louis Airplane Division, director of commercial engineering; William J. Crosswell, sales manager at Buffalo, director of military sales; Dean C. Smith, St. Louis sales manager, director of commercial sales; Peter N. Jansen, for many years factory manager at Buffalo, director of manufacturing; George S. Lapp, director of finance; John W. Dunn, director of quality, and Charles S. Mattoon, director of personnel.

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Incorporations

California—Aircraft Machinery Corp., to manufacture machines; capital 75,000 shares, par value \$1; permitted to issue 61,500 shares. Directors: A. Jerome Robins, Arthur P. Robins, James E. Stogsdill, Harold W. Nash, Louis Nalditch and H. A. Nelson.

California—Air Craftsman Inc., airplane manufacturing company located in Los Angeles County; \$25,000.

California—Briegleb Aircraft Co., Los Angeles; \$100,000. Directors: William G. Briegleb, Van Nuys; Herbert H. Lane, Earl W. Hill, Los Angeles, Robert L. Buell, Glendale; Eugart Yerlan, Montebello; Peyton Watkins, West Los Angeles; David A. Matlin, Beverly Hills.

California—Doak Aircraft Co. Inc., Hermosa Beach; \$1,000,000; to construct moulded plywood primary trainers. Edmond R. Doak, pres.; W. C. Deeds, v. p.; Dr. Leo Madsen, Reid Parkin, Windsor Grow, directors.

California—Pacific Aeronautical College of Los Angeles; \$25,000. Directors: C. L. Johns, E. D. Gartner, Dorothy Evans, all of Los Angeles.

Delaware—Airplane Parts Corp., Mottville, N. Y.; aircraft; \$100,000.

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Incorporators: L. M. Titter, O. Clayton, F. Picciotti, Wilmington.

Delaware—Atep Corp.; aircraft; 2,000 shares n. p. v. Incorporators: Alfred H. Lanser, W. E. Greene Jr., F. Jackson, New York City.

Delaware—Columbia Aircraft Corp.; aircraft; \$600,000, par \$1. Incorporators: David Jackson, Edwin E. Lindgren, John Cosgrove, New York City.

Delaware—National Air & Seaplane Corp.; aircraft; \$100,000, par \$5. Incorporators: L. M. Titter, O. Clayton, F. Picciotti, Wilmington.

Delaware—North American Aviation Inc. of Texas; airplanes; \$10,000, par \$1. Incorporators: R. F. Lewis, L. H. Herman, Howard K. Webb, Wilmington.

Delaware—Peckskill Seaplane Base; airplanes; \$50,000, par \$100. Incorporators: R. F. Lewis, L. H. Herman, Walter Lenz, Wilmington.

Delaware—Refiners Transport & Terminal Corp.; to deal in aircraft, boats, etc.; \$1,000,000, par \$10. Incorporators: R. F. Lewis, L. H. Herman, Howard K. Webb, Wilmington.

Florida—Darr-Lodwick Aviation Co., Lakeland; 100 shares n.p.v. Directors: J. P. Marchant, W. K. Love, N. L. Ford, Illinois—Alton Flying Service Inc., Godfrey; 500 shares common, par \$10. Incorporators: W. E. Burt, L. E. Burt, R. R. Harris. Correspondent: Maynard H. Motz, 306 First National Bank Bldg., Alton.

Indiana—Inter-City Flying Service Inc., Municipal Airport, Ft. Wayne; dealing in aircraft, operating flying school, transporting passengers, etc.; 100 shares, par \$100. Fred C. Romy, Guenever E. Romy, Ollie Blane McVey, Agent: Fred C. Romy, 3012 N. Anthony Blvd., Ft. Wayne.

Indiana—Magic City Airport Inc., Yorktown; to operate airport; 400 shares, par \$25. Neal M. Parkinson, Raymond G. McKibben, Wallace W. George, Vernon B. McGarvey, George W. Parkinson, Marion M. Hofner, William E. Moffitt, Agent: Neal M. Parkinson, Yorktown.

Iowa—Beacon Airways; "dealing in all aircraft pertaining to aeronautics"; \$25,000. L. W. du Von, pres.; William D. Elirnerg, v.p.; D. P. du Von, secy-treas.

New Jersey—United Institute of Aeronautics Inc., Hoboken; \$25,000. Agent: Perl A. Jourden.

New York—Barry & Wood Inc., New York City; aircraft; 350 shares n.p.v. Carter, Ledyard & Milburn, 2 Wall St., New York City.

New York—Empire State Airlines Inc., New York City; air transportation; 200 shares n.p.v. Prentice Hall Inc., 90 Broad St., New York City.

New York—Genesee Airport Inc., Henrietta; aircraft; \$20,000. Arnold Heichen, Wilder Bide, Rochester, N. Y.

New York—Ross Aircraft Corp., Amityville; aircraft; 100 shares preferred, 100 shares common n.p.v. Edmund J. Hahn, 148 Jerome St., Brooklyn.

Oklahoma—Southern Aviation Inc., Oklahoma City; \$3,000. B. T. Nuckola, C. R. Nuckola, Oklahoma City. D. G. Johnson, attorney, 610 Perrine Bldg., Oklahoma City.

South Carolina—Eagle Flying Service Inc., Walterboro; to deal in aircraft, airports and air transportation; \$2,000. H. Wayne Unger, pres.; Fripp Fishburne, v.p.; R. W. Housworth, secy-treas.

Texas—Dal-Tex Flying Club, Dallas; educational; no capital stock. Incorporators: R. M. Campbell, J. M. Thompson, A. J. Eder.

GOVERNMENT CONTRACTS

Awards of \$25,000 and Over

Release Date Shown

MISCELLANEOUS

Barnard Aviation Equipment Co. Inc., Wilkes-Barre, 11/22, gun trunnion items, \$75,264 (Air Corps).

General Electric Co., Schenectady, N. Y., 11/22, maintenance parts, \$118,680 (Air Corps).

Lycoming Div., Aviation Mfg. Corp., Williamsport, Pa., 11/22, maintenance parts, \$63,950 (Air Corps).

Shell Oil Co. Inc., New York, N. Y., 11/22, fuel oil, \$90,130 (Air Corps).

Hayes Industries Inc., Jackson, Mich., 11/22, assemblies, \$94,177 (Air Corps).

Longines Wittnauer Watch Co., New York, N. Y., 11/22, clock assemblies, \$179,800 (Air Corps).

Weston Electrical Instrument Corp., Newark, N. J., 11/22, indicator assemblies, \$113,586 (Air Corps).

P. R. Mallory & Co. Inc., Indianapolis, Ind., 11/22, control assemblies, \$342,850 (Air Corps).

Bell Aircraft Corp., Buffalo, N. Y., 11/22, assemblies, \$249,375 (Air Corps).

Mine Safety Appliance Co., Pittsburgh, Pa., 11/22, manifold systems, \$67,580 (Navy).

Bausch & Lomb Optical Co., Rochester, N. Y., 11/22, goggle frames & lenses, \$25,378 (Navy).

Chas. Fischer Spring Co., Brooklyn, N. Y., 11/22, goggle frames & lenses, \$34,100 (Navy).

Irving Air Chute Co. Inc., Buffalo, N. Y., 11/25, parachutes, \$85,125 (Air Corps).

Phillips Petroleum Co., Bartlesville, Okla., 11/26, aircraft engine fuel, \$59,400 (Air Corps).

Richfield Oil Corp., Los Angeles, Cal., 11/26, aviation gasoline, \$53,250 (Navy).

Standard Oil Co., Louisville, Ky., 11/26, aviation gasoline, \$637,674 (Navy).

Soco-Vacuum Oil Co. Inc., New York, N. Y., 11/26, aviation gasoline, \$111,300 (Navy).

Union Oil Co. of California, Los Angeles, Cal., 11/26, aviation gasoline, \$383,120 (Navy).

Shell Oil Co. Inc., San Francisco, Cal., 11/26, aviation gasoline, \$290,162 (Navy).

Shell Oil Co. Inc., New York, N. Y., 11/26, aviation gasoline, \$130,312 (Navy).

Standard Oil Co. of New Jersey, New York, N. Y., 11/26, aviation gasoline, \$417,683 (Navy).

Standard Oil Co. of California, San Francisco, Cal., 11/27, aviation gasoline, \$881,807 (Navy).

S. Morgan Smith Co., York, Pa., 11/27, propellers, \$57,950 (Navy).

Switlik Parachute & Equipment Co., Trenton, N. J., 11/27, flying suits, \$32,600 (Navy).

Standard Oil Co. of California, San Francisco, Cal., 11/28, aviation gasoline, \$101,250 (Air Corps).

Shell Oil Co. Inc., New York, N. Y., 11/28, aviation gasoline, \$42,499 (Air Corps).

Jaeger Watch Co. Inc., New York, N. Y., 11/28, clock & tachometer assemblies, \$54,748 (Air Corps).

Pratt & Whitney Aircraft Div., United Aircraft Corp., E. Hartford, Conn., 11/22, maintenance parts, \$480,024 (War).

Eclipse Aviation Div., Bendix Aviation Corp., Bendix, N. J., 11/12, generator assemblies, \$60,258 (War).

Hayes Industries Inc., Jackson, Mich., 11/12, maintenance parts, \$52,080 (War).

Hayes Industries Inc., Jackson, Mich., 11/12, wheel & brake assemblies, \$25,859 (War).

Pratt & Whitney Aircraft Div., United Aircraft Corp., E. Hartford, Conn., 11/13, airplane engines, \$57,856.179 (Navy).

Sperry Gyroscope Co. Inc., Brooklyn, N. Y., 11/13, automatic pilots, signal units, etc., \$3,044,887 (Navy).

Standard Oil Co. of New Jersey, New York, N. Y., 11/14, naval fuel oil & aviation gasoline, \$1,360,900 (Navy).

Adams & Westlake Co., Elkhart, Ind., 11/14, aircraft lamp assemblies, \$36,000 (Air Corps).

Kollsman Instrument Div., Square D Co., Elmhurst, N. Y., 11/15, indicator & tube assemblies, \$645,005 (Air Corps).

Kollsman Instrument Div., Square D Co., Elmhurst, N. Y., 11/15, tachometer, \$764,318 (Air Corps).

Pioneer Instrument Div., Bendix Aviation Corp., Bendix, N. J., 11/15, indicator assemblies, \$308,000 (Air Corps).

Curtiss Propeller Div., Curtiss-Wright Corp., Clifton, N. J., 11/15, blade assemblies, \$97,110 (Air Corps).

Grumman Aircraft Engineering Corp., Bethpage, L. I., N. Y., 11/15, aircraft wings, \$30,888 (Navy).

North American Aviation Inc., Inglewood, Cal., 11/19, spare parts for airplanes, \$58,526 (Navy).

Manning, Maxwell & Moore Inc., Bridgeport, Conn., 11/19, gage & thermometer assemblies, \$459,185 (Air Corps).

Moto Meter Gauge & Equipment Div., Electric Auto-Lite Co., La Crosse, Wis., 11/19, \$193,482 (Air Corps).

Shell Oil Co. Inc., St. Louis, Mo., 11/28, aviation gasoline, \$103,044 (Air Corps).

P. R. Mallory & Co. Inc., Indianapolis, Ind., 11/28, shackle releases, \$329,868 (Air Corps).

Hayes Industries Inc., Jackson, Mich., 11/28, wheel & brake assemblies, \$471,305 (Air Corps).

Consolidated Aircraft Corp., San Diego, Cal., 11/28, airplane specification changes, \$342,169 (Air Corps).

Bendix Products Div., Bendix Aviation Corp., South Bend, Ind., 11/28, wheel & brake assemblies, \$260,100 (Air Corps).

Jack-Heintz Ltd., Cleveland, O., 11/28, starter assemblies, \$808,785 (Air Corps).

Suncook Mills, Suncook, N. H., 11/28, airplane cloth, \$57,797 (Navy).

American Silk Mills Inc., New York, N. Y., 12/2, parachute silk, \$37,500 (Navy).

Pratt & Whitney Aircraft Div., United Aircraft Corp., E. Hartford, Conn., 12/5, maintenance parts, \$1,476,946 (Air Corps).

Air Cruisers Inc., Clifton, N. J., 12/5, envelope & accessories assemblies, \$34,720 (Air Corps).

Variety Aircraft Corp., Dayton, O., 12/5, Air Corps standard propeller tools, \$30,680 (Air Corps).

Bunell Machine & Tool Co., Cleveland, O., 12/5, stand assemblies, \$36,206 (Air Corps).

Pump Engineering Service Corp., Cleveland, O., 12/5, pump assemblies, \$37,800 (Air Corps).

Dahlstrom Metallic Door Co., Jamestown, N. Y., 12/5, ammunition box assemblies, \$41,360 (Air Corps).

Manning, Maxwell & Moore Inc., Bridgeport, Conn., 12/5, gage assemblies, \$44,280 (Air Corps).

Eclipse Aviation Div., Bendix Aviation Corp., Bendix, N. J., 12/6, maintenance parts, \$294,474 (Air Corps).

Curtiss Aeroplane Div., Curtiss-Wright Corp., Buffalo, N. Y., 12/6, maintenance parts, \$53,519 (Air Corps).

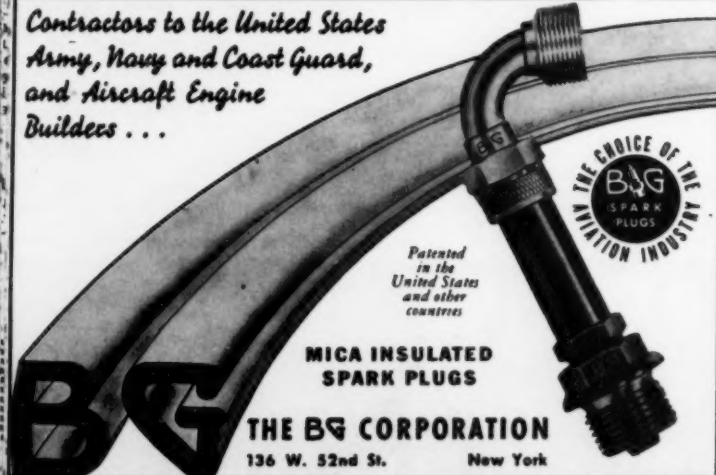
Republic Aviation Corp., Farmingdale, N. Y., 12/6, maintenance parts, \$103,804 (Air Corps).

Curtiss Propeller Div., Curtiss-Wright Corp., Clifton, N. J., 12/6, assemblies, \$76,475 (Air Corps).

Boeing Aircraft Co., Seattle, Wash., 12/6, fuel tanks, \$249,015 (Air Corps).

Service Tool & Engineering Co., Dayton, O., 12/6, sight assemblies, \$154,000 (Air Corps).

Contractors to the United States Army, Navy and Coast Guard, and Aircraft Engine Builders . . .



Stock Comments

Broad Publicity of Production Problems
Hinders Advance of Aviation Stocks

Chart Data Supplied by Wyckoff Associates Inc.

By PHILIP P. FRIEDLANDER

"Chicken for Thanksgiving; Turkey for Christmas!"

If ever the old timers of Wall Street had an opportunity to grin complacently, it was when they repeated this worn-out adage. For this was one time in the year that the market seemed to follow a definite course of action. From the middle of November until about the 20th of December, transactions slow up and prices retreat. The explanation that selling for tax purposes takes a predominant position in controlling the destiny of equity prices seems simple enough.

But now no one familiar with what is transpiring in the world today, or anyone who follows the market with a grim, realistic purpose, would state that this is the only influence abroad. The war with its ever-shifting and swift-moving events has made it impossible for any of the old rules to be followed religiously. The swings, of necessity, must be exaggerated, and prices of securities no longer anticipate coming events.

This fact is more vividly shown by the recent action of the general industrial averages, as recorded by the Dow Jones figures. A long period of time was spent by the market trying to negotiate the 135 resistant point. When that was broken, a fast climb to 138 took place. Under all the old rules, this should have meant the beginning of a formidable upward swing. True, a correction back to the original line close to 135-136 was in order. A move of this sort often takes place to increase technical strength. But instead the correction carried the averages under 130, losing all the gains and placing the market in a precarious position. War events, it was pointed out, caused the erasure of the hard-made gains.

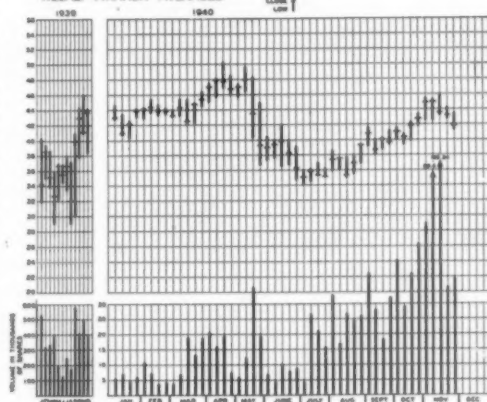
Pattern Followed

The aviation stocks followed the pattern outlined by the general market. From the 40 level, the averages of this group climbed to 46, selling in that zone while the Dow Jones Industrials swung into the new virgin territory around 138. It was normal for aviation stocks to find sellers in this area, but the lining movement that followed should have been the forerunner of another upward thrust. Instead these averages sold off with the general market until a low of 40.90 was established during the week of Dec. 7; this meant that aviation securities were back again into the price zone of the middle of October, and that all of November gains had been forfeited.

All the while many followers of aviation stocks are puzzled at this market performance. Orders have piled in; bigger orders are coming. Why don't these securities express market-wise this promised prosperity? First, the market is failing to anticipate. The possibility of peace seems very remote; but if hostilities should cease there is no way to tell how the federal government will readjust its rearmament program. Second, if it means a long war, as it looks now, will the U. S. become embroiled?

There is, too, the problem connected with the changing of a small industry into large-scale production. Because of the importance of the aviation manufacturing companies to the U. S. and Great Britain for their national survival, all that transpires in the industry is recorded and noted. This is fatal publicity, the kind that causes speculators and investors to hesitate in making large market purchases in stocks of this particular group. The problem of the industry, of course, is not vastly different from the problem of others when

WEEKLY AVIATION AVERAGES



growing into mammoth size. The stories telling of what is happening, as this development goes on, are exaggerated in importance.

When the big orders first were given, there was a romantic market value attached to such publicity. Twenty and 30 million dollars seemed incomprehensible. Now orders for 50 and 100 million are but a part of the picture. What formerly lured the investor has now crystallized into "show-me-that-it-can-be-done" attitude. Investors and speculators alike are clamoring for accomplishment. Hence what should have meant large actual market commitment for these securities has in reality meant just small purchases until something more tangible is discerned.

Move to 65 Seen

In line with this is the technical behavior of the aviation manufacturing group. In all probability there must be another period of backing and filling. (Evidently, to give time for actual production figures to be issued). The big move to 65 promised, or even the test-out to 52, the old high, must await another period of dreary rallies and corrections. This should not be true of all the individual aviation stocks.

For example, the chart on Glenn L. Martin shows that the accumulation preparation has been accomplished. At 36, it should signal the beginning of a rather substantial thrust forward. Individual situations will develop and will probably move ahead of the rest of the group or the averages.

In avoiding discussion of the airline stocks, this column desires further study of this complicated situation. In the next article a more detailed account of this group will be given.

Kondolf Resigns to Become

Treasurer of Maxson Corp.

Harold Kondolf has resigned from Aviation Manufacturing Corp. to become treasurer of W. L. Maxson Corp., 460 W. 34th St., New York City, it was learned in mid-November.

The Maxson company is engaged in the manufacture of computing instruments, gunfire control devices and other military and navigational apparatus.

Firm Plans to Manufacture

Plastic Parts for Trainers

Plastic wings, fuselages and floats for two and three-passenger training planes will be placed in production within the next few weeks by National Aircraft Corp., Elwood, Ind., according to Milo E. Miller, president of National Trailer Corp., organizer of the new firm.

The parts, to be manufactured under patents of Rose Aviation Corp., New York City, will be sold directly to manufacturers for distribution to flying schools.

BACKLOGS ARE BIG

Three Sets of Figures are Proof

UNFILLED orders of aircraft companies are huge, says Fenner & Beane's survey of manufacturing organizations, estimating that contracts received or in prospect probably exceed \$3,000,000,000, 20 times the total on Jan. 1, 1939.

In AMERICAN AVIATION's table of backlog, production area and employment figures, published Dec. 1, total backlog figures for 55 aircraft, engine, propeller, accessory and instrument manufacturers, and firms working on subcontracts, unfilled orders stood at \$4,072,902,847. This figure could be said to overlap and represent duplicate work, inasmuch as subcontracting is included, but it does represent "contracts held" by the industry.

A survey by the Aeronautical Chamber of Commerce reported a backlog as of Nov. 1, 1940, of \$2,831,665,159 as compared to \$675,432,475 on Dec. 31, 1939. The Chamber estimated that deliveries for 1940 would total approximately \$625,000,000 as compared to \$225,000,000 last year. (See story on page 1).

Expansion of production is the urgent task; the industry is, and for many months will continue to be engaged in a concerted drive to boost its output from the annual rate of \$225,000,000 in 1939, \$350,000,000 early this year, \$550,000,000 at the mid-year point, and \$675,000,000 currently, to at least \$1,000,000,000 in 1941 and an eventual peak of perhaps \$2,000,000,000 in 1942, according to the Fenner & Beane study.

As the result of a survey completed recently by the Los Angeles County Chamber of Commerce, it was reported that unfilled orders of \$807,466,856 were held by southern California's aviation industries. Employment stood at 45,859 with a monthly payroll of \$6,361,244.

In AMERICAN AVIATION's table, existing production area for 38 companies totaled 15,981,176 sq. ft. Employment for 44 companies had reached 149,174 as of Nov. 15.

Manufacturing space for leading airplane, engine and propeller factories as of Nov. 15 totaled 16,703,230 sq. ft. as reported by the Aeronautical Chamber of Commerce in the last issue. This is in contrast to the 9,123,143 sq. ft. figure of 1939. Predicted in 1942 by the Aero Chamber were 33,370,822 sq. ft., based on expansion plans now in effect.

Bargaining Election Announced

The National Labor Relations Board has announced that a secret ballot election will be conducted this month among production and maintenance employees of Curtiss-Wright Corp., St. Louis Airplane Division, Robertson, Mo., to determine whether they wish to be represented by the International Association of Machinists (AFL), Aircraft Independent Vertical Labor Union, or by neither.

The company formerly had a one-year collective bargaining agreement with the IAM.

Technical Publicity Dept.

Edward F. Korb and Worth Colwell, counsellors in public relations, 570 Lexington Ave., New York, N. Y., have inaugurated a technical publicity department which is headed by Niran Bates Pope, automotive engineer and former editor of *Automobile Topics* and *Motor World* and more recently with the Automobile Manufacturers Association in its public relations department.

Present active clientele includes radio television engineering and aviation in addition to a number of other specialized fields.

NEW YORK STOCK EXCHANGE

	Week Ended Nov. 30			Week Ended Dec. 7			
	High	Low	Net Change	High	Low	Net Change	
American Airlines ...	61 1/4	55 3/4	-3 1/2	6,200	59	57 3/4	+2
Aviation Corp.	5 1/4	4 3/4	- 1/2	12,000	4 3/4	4 3/4	+ 1/2
Bendix Aviation	33 3/4	32 1/2	- 1 1/2	9,500	32 1/2	32	+ 5/8
Boeing Airplane	18 1/2	17 1/2	- 1	15,900	18 1/2	17 1/2	+ 1/2
Consolidated Aircraft ..	25	23 3/4	- 1 1/4	1,600	24 1/2	24	+ 1/2
Continental Motors	3 1/2	3 1/4	- 1/4	7,100	3 1/4	3 1/4	+ 1/4
Curtiss-Wright	9 1/2	8 1/2	- 1	32,300	9 1/2	8 1/2	+ 1/2
Curtiss-Wright A	28 1/2	27 1/2	- 1	2,000	28 1/2	28	+ 1/2
Douglas Aircraft	82	77 1/2	- 4 1/2	3,700	79 1/2	77 1/2	+ 1/2
Eastern Air Lines	35	30 3/4	- 4 1/4	15,600	33 3/4	32	+ 1/2
Ex-Cell-O	30 1/2	29 1/2	- 1	2,900	30 1/2	29 1/2	+ 1/2
Grumman Air. Eng.	18	16 1/4	- 1 3/4	2,500	18	16 1/2	+ 1/2
Lockheed Aircraft	31 1/2	29 1/4	- 2 1/4	12,300	30 3/4	29 1/4	+ 1/2
Glenn L. Martin	33 3/4	31 1/4	- 2 1/2	5,500	32 1/2	31 1/2	+ 1/2
Natl. Aviation Corp.	11 1/2	10 1/2	- 1	600	10 1/2	10 1/2	+ 1/2
N. American Aviation ..	18 1/2	17	- 1 1/2	9,900	18 1/2	17	+ 1/2
Pan American Airways ..	16 1/2	14 1/2	- 2	9,400	16 1/2	15 1/2	+ 1/2
Sperry Corp.	42 1/2	41	- 1 1/2	4,100	42 1/2	40 1/4	+ 1/2
Square D Co.	33 1/2	32 1/2	- 1	1,500	35 1/2	33 1/2	+ 2 1/2
Thompson Products ..	33 1/2	32 1/2	- 1	900	32 1/2	32 1/2	+ 1/2
TWA	19 1/2	17 1/2	- 2	10,000	18	17 1/2	+ 1/2
United Aircraft	46 1/2	43 1/2	- 3	13,875	43 1/2	41 1/2	+ 1/2
United Air Lines	17 1/2	15 1/4	- 2 1/4	18,500	16 1/2	15 1/2	+ 1/2
Wright Aeronautical ...	100	100	- 2	20	100	100	+ 1/2

NEW YORK CURB EXCHANGE

	Week Ended Nov. 30			Week Ended Dec. 7			
	High	Low	Net Change	High	Low	Net Change	
Aero Supply A	21 1/2	21 1/2	- 1/2	200	21 1/2	21 1/2	+ 1/2
Aero Supply B	6 1/2	6 1/4	- 1/4	1,400	6 1/2	5 3/4	+ 1/4
Air Associates	11 1/2	11 1/2	- 1/2	100	11 1/2	11 1/2	+ 1/2
Air Investors	1 1/2	1 1/4	- 1/4	200	2	1 3/4	+ 1/4
Air Investors war	1 1/2	1 1/4	- 1/4	100	1 1/2	1 1/4	+ 1/4
Aviation & Transp.	4 1/2	3 1/2	- 1	16,700	4 1/2	3 3/4	+ 1/2
Beech Aircraft	5 1/2	4 3/4	- 3/4	4,100	6	5 1/4	+ 1/2
Bell Aircraft	22	20 1/4	- 1 3/4	1,200	20 1/4	19	+ 1/2
Bellanca Aircraft	4 1/2	4 1/2	- 1/2	700	4 1/2	4 1/2	+ 1/2
Breeze Corps	8 1/2	8 1/2	+ 1 1/2	16,200	8	5 1/4	+ 1/2
Canadian Colonial	12 1/2	11	- 1 1/2	5,700	11 1/2	10 1/2	+ 1/2
Fairchild Aviation	11 1/2	10 1/2	- 1	4,100	11 1/2	10 1/2	+ 1/2
Fairchild Eng. & Air.	4	3 1/2	- 1/2	600	10 1/2	10 1/2	+ 1/2
Irving Air Chute	15 1/2	14	- 1 1/2	3,800	15 1/2	15	+ 1/2
Penn-Central Airlines ..	14 1/2	12 3/4	- 1 3/4	800	15 1/2	15	+ 1/2
Republic Aviation	5 1/2	4 3/4	- 3/4	3,200	4 3/4	4 1/2	+ 1/2
Roosevelt Field	2 1/2	2 1/2	+ 1/4	300	4 1/2	4 1/2	+ 1/2
Ryan Aeronautical	4 1/2	4 1/2	+ 1/2	200	4 1/2	4 1/2	+ 1/2
Vultee Aircraft	8 1/2	8 1/2	+ 1/2	2,200	8 1/2	8 1/2	+ 1/2
Waco Aircraft	4 1/2	4 1/2	+ 1/2	100	3 1/2	3 1/2	+ 1/2
Western Air Express ..	5 1/2	4 3/4	- 3/4	1,200	5 1/2	5 1/2	+ 1/2

Washington Financial Review

SEC Registration

Northeast Airlines Inc.

Company (formerly Boston-Maine Airways Inc.) registration statement covers 128,892 common shares, \$1-par, with maximum offering price \$6. There are firm commitments to purchase 101,796 shares and company is offering remaining 27,096 directly to certain stockholders. Principal underwriter is Lee Higginson Corp., 50 Federal St., Boston, Mass.

Of the proceeds, \$456,286 is tentatively allotted for three 24-passenger Douglas DC-3 craft, with instruments, radio, shop equipment, spare parts and accessories, including two Pratt & Whitney SIC3G engines. Delivery of new planes was originally set for Apr. 17, May 8 and May 10, 1941. In addition to cost of equipment, \$47,222 will be used to reduce outstanding bank loans, proceeds of which were used to purchase two used Lockheeds and partially to reimburse treasury for amounts previously expended in purchase of two new and one used Lockheed Electras. Undetermined amount will be added to treasury for improvements made since Mar. 1, 1937, from current receipts.

Recapitalization: As of Sept. 30, 1940, authorized capital stock comprised \$100-par preferred and \$100-par common, but stockholders at meeting Dec. 10 adopted recapitalization plan exchanging all old stock for new, to consist solely of an authorized 500,000 shares \$1-par common.

Owners of 10% or more of outstanding stock at Sept. 30: (1) Boston & Maine Railroad, Boston, Mass., beneficial and record owner of 250 common, 16 2/3%; (2) Maine Central Railroad Co., Portland, Me., beneficial and record owner of 250 common, 16 2/3%; (3) Central Vermont Airways Inc., St. Albans, Vt., beneficial and record owner of 250 common, 16 2/3%; (4) total of 732 common shares, 48.81% are held of record by Paul F. Collins, president and director, and Samuel J. Solomon, vice-president-director, while beneficial owners of these shares are shown as Collins 244 or 16.27%, Solomon 244, and Eugene L. Vidal, director, 244.

After conversion, each stockholder formerly owning 250 shares of old common will own 28,518 new common; each formerly owning 244 shares will own 27,826 new shares, percentages remaining unchanged. By agreements dated in November, Collins, Solomon and Vidal have each agreed to sell to Boston & Maine Railroad, or nominee, 2,450 new common shares at time of delivery of stock here registered.

At Sept. 30, total assets were \$486,890, current \$169,957, property and equipment after depreciation \$152,149, going concern value and other intangibles \$153,567, prepaid expenses and deferred charges \$11,216. Current liabilities \$163,086, notes payable \$52,778. Capital, preferred 5% non-cumulative, \$100-par, authorized 2,500, outstanding 1,914; common stock, \$100-par, authorized 2,500 shares, outstanding 1,500. Capital surplus contributed in cash \$16,103; deficit in earned surplus \$89,560; total capital \$267,943.

Current SEC Reports

TWA

For purchase of new equipment, Transcontinental & Western Air Inc. has established revolving credit as follows: (1) Beginning Nov. 1, 1940, and ending Dec. 31, 1941, \$2,500,000; (2) Calendar year 1942, \$2,350,000; (3) Calendar year 1943, \$1,750,000; (4) Calendar year 1944, \$1,000,000. Participation is as follows: (1) Commercial National Bank & Trust Co. of New York, 40%; (2) New York Trust Co., New York City, 12%; (3) First National Bank of Kansas City, Kansas City, Mo., 10%; (4) Commerce Trust Co., Kansas City, Mo., 10%; (5) Harris Trust & Savings Bank, Chicago, Ill., 10%; (6) National Bank of Commerce, Houston, Tex., 10%; (7) Farmers & Merchants National Bank of Los Angeles, 8%.

During the periods above, each bank agrees to make advances to TWA from time to time at latter's request and upon five days written notice to Commercial National Bank & Trust Co., up to but not exceeding the percentage of the total revolving credit. No single borrowing from all said banks shall aggregate less than \$250,000; notes will bear interest at 2 3/4 % per annum, payable quarterly.

TWA agrees to pay the banks during term of this credit a commitment commission at rate of 3/4 of 1% per annum on the difference between the maximum amount of credit that could be used during the period and amount actually used, computed daily and payable quarterly. TWA has right to terminate agreement dated Oct. 28, 1940, upon 60 days prior notice to Commercial National Bank & Trust Co., upon payment on or prior to such termination date of all advances then unpaid, together with interest thereon, plus the commitment commission. During life of agreement, TWA will not, without consent of the banks, permit working capital to go below \$1,500,000 or permit current liabilities to exceed \$2,500,000.

United Aircraft Products Inc.

This Dayton company, which amended charter July 5, 1940, increasing authorized capital stock from 200,000 common shares, \$1-par, to 400,000, reports that 199,445 shares are outstanding following issuance of (1) 500 shares for cash upon exercise of outstanding options, with proceeds of \$3,502; (2) 63,333 shares for assets acquired less liabilities assumed of Aircraft Precision Products Inc., of California, net value of which, after provision by registrant for \$55,000 to cover estimated expenses of such acquisition, is \$259,246. These shares will be distributed to Aircraft Precision stockholders.

Aviation Corp.

Company informs SEC that 4,347,959 capital shares, \$3-par, were outstanding Nov. 7, including 11,291 treasury shares. On Oct. 11 firm issued to Republic Aircraft Products Corp. \$385,000 shares, \$3-par, in exchange for all the property, assets, and assumption of Republic liabilities. Assets consisted of cash, inventories, accounts receivable, fixed properties and intangibles having total value of \$1,780,625. Of net proceeds,

Executives Shift



Claude E. Murray (left), veteran of 30 years' service with Willard Storage Battery Co., has been appointed vice-president and general manager of the company. He succeeds S. W. Rolph (right) as general manager of the Willard organization, Rolph becoming vice-president of Electric Storage Battery Co.

\$625,625 were credited to capital surplus.

McDonnell Aircraft Corp.

Firm recently sold through Crago, Smith & Canavan, St. Louis underwriters, 423 shares of its 6% non-cumulative preferred, \$100-par, and 4,230 shares of its \$1-par common, in units at \$100 to underwriters and at \$110 to public. Earlier, company sold 13,248 common shares at 5c to various officers and employees, and 1,765 1/2 shares preferred and 17,655 common direct to public in units of one preferred and 10 common, at \$100 per unit. Company recently offered direct to public 484 1/2 units, plus 327 additional units not purchased by underwriters, all being offered at not less than \$120.

Authorized are 10,000 preferred shares, 360,000 common shares, with 30,000 common reserved for conversion of 3,000 preferred. Company has elected two new directors: Boyle O. Rodes, Railway Exchange Bldg., St. Louis, Mo., and Ivan H. Driggs, chief engineer.

Air Associates Inc.

Company reports loan agreement with Brooklyn Trust Co. of \$300,000 principal, dated May 29, 1940, with repayment in installments of \$10,000 starting Mar. 1, 1941, and balance to be paid by June 1, 1945, final maturity date. Interest, beginning Sept. 1, 1940, is payable quarterly at 1 1/2% annually above the Federal Reserve re-discount rate in New York City prevailing at time of each such interest payment, but in no event greater than 3 1/2% per annum. Proceeds of loan were used in construction of new plant, for necessary land and machinery, and for working capital. During term of loan, firm will maintain working capital at minimum of \$500,000 and the ratio of current assets to current liabilities at minimum of 1.75 to 1.

Financial Reports

BEECH AIRCRAFT CORP.—Report for fiscal year ended Sept. 30 shows net income of \$68,193, after provision for federal and state income taxes, equivalent to 17c each on 400,000 shares of common stock outstanding. Net sales totaled \$2,345,255, compared with \$1,328,296 in preceding year when net loss was \$91,479.

In statement of stockholders, Walter H. Beech, president, pointed out that to facilitate substantial increases in inventories required by the defense program, funds were supplied in part through the sale of 40,353 shares during the fiscal year, which provided \$231,288 in working capital and increased capitalization to 400,000 shares. In addition, "company is using a portion of the bank credit available at a reasonable cost." Company's expansion program is covered by government emergency facility contracts with amortization over five years.

Company employed nearly 2,000 persons on Nov. 16, twice the number of a year ago. Backlog at Nov. 22: \$22,600,000.

HAYES INDUSTRIES INC.—Net profit of \$155,354 before taxes for three months ended Oct. 31, \$77,654 after taxes, or 23c each on 333,000 common shares outstanding. Aircraft sales for quarter were \$561,016, up 123% above \$250,847 for 1939 quarter.

Dividends

GRUMMAN AIRCRAFT ENGINEERING CORP.—75c payable Dec. 28 to stockholders of record Dec. 16, bringing 1940 payments to \$1.25 against \$1.25 in 1939.

THOMPSON PRODUCTS INC.—50c a common share, payable Dec. 27 to holders of record Dec. 21, bringing 1940 payments to \$1.75, compared with \$1 in 1939.

LOCKHEED AIRCRAFT CORP.—\$1.50 on 1,000,000 shares outstanding, payable Dec. 23 to holders of record Dec. 13. Last year Lockheed paid \$1.

FAIRCHILD AVIATION CORP.—25c payable Dec. 20 to common stockholders of record Dec. 12, bringing 1940 payments to 50c, against 40c in 1939.

SQUARE D CO.—\$1.50 payable Dec. 24 to common stockholders of record Dec. 17, increasing 1940 payments to \$2.80, against \$1.75 last year. Quarterly of \$1.25 on 5% preferred also declared payable Jan. 2 to stockholders of record Dec. 31.

BREEZE CORPS, INC.—\$1 per capital share payable Dec. 11 to holders of record Dec. 4, compared with 50c in 1939.

EX-CELL-O CORP.—85c dividend raises payments this year to \$2.30, against \$1 last year.

ALUMINUM CO. OF AMERICA—40 on common stock payable Dec. 12 to holders of record Nov. 30. With \$1 paid in each of preceding quarters, disbursement for 1940 is \$6 a share, same as for 1939.

NORTH AMERICAN AVIATION INC.—75c payable Dec. 24 on stock of record Dec. 9, bringing 1940 payments to \$1.25 against \$1.40 in 1939.

ROOSEVELT FIELD INC.—20c payable Dec. 17 to stockholders of record Dec. 3.

Application for Listing

BENDIX AVIATION CORP.—65,000 common shares, \$5-par, to be registered upon notice of issuance, on New York and Chicago Stock Exchanges. NY Stock Exchange permission for listing already has been received.

Rohr Begins Tooling For Parts Contracts

Tooling in anticipation of contracts from west coast plane factories for aircraft parts and assemblies has begun at San Diego, Cal., by the newly organized Rohr Aircraft Corp. incorporated for 500,000 shares of \$1 par value common stock.

Fred H. Rohr, former factory manager of Ryan Aeronautical Co., is president and general manager. The firm will operate as a closed corporation, Rohr explained, and 150,000 shares already have been acquired by San Diego interests.

Operating personnel of the concern will include as chief engineer Harlan D. Fowler, inventor of the Fowler wing flap, who has been consulting engineer at Consolidated Aircraft Corp. Other officers are J. E. Rhelm, sales manager; E. P. Campbell, comptroller; E. M. Lacy, factory manager, and K. W. Maynard, factory superintendent.

Continental Motors Converts 1,700 Wright Whirlwinds

Continental Motors Corp. is reported to have been directed by the Defense Commission to divert 1,700 450-hp. Wright Whirlwind engines, previously scheduled for use in tanks, to be installed in Army Air Corps trainers.

Company is said to have orders for more than 3,000 training plane engines of its own design, in addition to 1,000 other of the same type intended for use in light tanks.

U. S. Plywood Buys Two Firms

U. S. Plywood Corp. has purchased all of the stock of Algoma Plywood & Veneer Co., Algoma, Wis., and Hamilton Veneer Co., Orangeburg, S. C., for \$900,000. The properties include a new plant for the Vidal molded aircraft plastics process.

Northwest Airlines, Inc.

COMMON STOCK

Bought - Sold - Quoted

THE MILWAUKEE COMPANY

135 West Wells Street
MILWAUKEE, WISCONSIN



The Birdmen's Perch

Gentlemen, the world moves on. There used to be a time when solving puzzles was a sport for old ladies. But not any more—why, I've discovered you guys go after the answer to *Perch* puzzles with everything from a slide rule to an adding machine! To emphasize this trend further, this month's toughie was contributed by a Prof. from Virginia Poly! Hold your hats, boys—you're moving in fast company.

Major Al Williams, alias "Tattered Wing-Tips," Mgr.,
Gulf Aviation Products, Gulf Building, Pittsburgh, Pa.

MORE ABOUT INSIGNIA

Running this page certainly has its little problems. For instance, last month we promised that if you'd send in copies of private plane insignia, we'd print the best ones. You did and we got one that stood out above all the rest. It was a picture of that furious little fellow from the movie shorts who must remain nameless but whose initials are "D.D." Well, it seems "D.D." is so tied up by copyright, etc., etc., etc., that publishing his picture is a very risky business. So—the winning entry of Mr. G. V. Stedman of Wyoming, Pa., cannot grace our page. You'll just have to imagine how good it is!

OL' WASHBOARD GOT US!

When I was a little boy, we had a colored maid who was famous throughout the neighborhood for the excellence of her laundering. How she ever got sheets, pillowcases, and shirts so snowy white, was a secret she would share with no one.



However, I finally wormed it out of her one day. "Mistah Al," she told me, "here's how Ah does it. Ah washes them clo's till they's clean—an' then Ah launders them!"

We could apply a lot of technical names to it, but that's just about the same system we follow in refining Gulfpride Oil. We "wash" Gulfpride—and then we "launder" it, by means of the Alchlor Process. This extra step in refining, taken by Gulf, removes up to 20% more carbon and gum-forming impurities, and leaves an oil that exceeds every set of oil specifications—including Army and Navy. So remember, when you pour Gulfpride into your engine, you're using an oil that's been "laundered" extra clean!

PUZZLER FROM POLY!

As you exercise your brain over this one, you can thank Mr. Edwin C. Davis, Assistant Professor of Metallurgy at Virginia Polytechnic Institute, Blacksburg, Virginia.



A man went into a shoe store and bought a pair of shoes for \$6.00. In payment he gave the clerk a bogus \$20.00 bill. Not having the proper change, the clerk asked the customer to wait a moment while he went across the street to the butcher's and changed the bill. Presently he returned and gave the customer his \$14.00 change. A few minutes later the butcher came over and excitedly explained that the bill he had just changed for the shoe clerk was counterfeit and demanded \$20.00 in good money. The manager of the shoe store gave the butcher \$20.00 in good money and he went away satisfied. The question is: How much is the shoe-store manager out?

THIS MONTH'S WHOPPER

(We're still out of breath)

Dear Major:

I'm writing you to see if you will help me out of my trouble, because I think you are at least partly to blame.

It all started when I built a beautiful gas model airplane, a model of your "Gulphawk." This job was complete from rudder tab to inverted flight carburetor, and quite the pride of my workshop hangar. Then Local 999 1/4, United Amalgamated A & E Mechanics and Apprentices, decided to have a hobby show, and I entered my ship in the stunt plane class. My brother, a gun collector, persuaded me to mount a nifty little .22 machine gun (synchronized, of course) on the cowl, and we planned to practice ground strafing before the meet.

Then along comes my cousin, a bookworm par excellence, and tells me about the claims you have been making for Gulf Aviation Gas. I tell him I don't want to monkey with my tank, GAG or no GAG, but he slips a couple of drops in with the regular model gas when I'm not looking. We arm the gun, spin the stick, and off she goes, zooming over the fence at the end of the yard.

The next thing we know, she's heading for Brainard Field. In exactly .000000134 min-

utes (my uncle, a watchmaker, timed her) she's out of sight. We kiss her good-by and my cousin confesses to his dastardly deed.

Soon came a C.A.A. inspector, a Connecticut Bureau of Aeronautics officer, a state cop, a city police cruiser, and a delegation of members of the Aircraft Owners and Pilots Association. I am charged with everything in the book.

It seems that the 'plane, after leaving my sight, strafed all the houses between here and Brainard (1 mile), barnstormed the hangars, caused a National Guard observer to become airsick while watching the attack, ripped the windsock from its moorings, and landed with wheels retracted on the State Capitol



grounds, ripping up the Governor's pet flower bed. The police say the mechanism tried to put the wheels down while the plane was ten miles from the Capitol, but the 'plane was going so fast that it landed before the wheels got down. The descending wheels raised the ship to a three-point position, whereupon the plane walked to the nearest Good Gulf station for a refill!

I shall appreciate anything you can do to help me, Major, but please don't make me promise to use G.A.G. in my models.

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